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ON page 367 of our last number, Mr. FACKENTHAL is made to say, in his paper on the Durham Blast-Furnace, that the cost of blast-heating apparatus of the Durham type was "$12,000 for a plant of stoves to make 500 tons of iron per day." The daily product named was, not 500, but 100 tons. The cast-iron stoves of Mr. EDWARD COOPER, used at the Durham Works, are very cheap and very good; and the record of the furnace is admitted to be excellent; but the types in our report asserted more than the wildest partisan could claim. *

THE great strikes among the iron-workers at the Pittsburg and other Western mills have begun, and are said to throw some 75,000 men out of work and all the mills at and west of Pittsburg have closed, and at the present writing but half a dozen of those that are but slightly affected by the conditions have signed the workmen's scale.

The mills are not apparently unwilling to stop for a time to reduce stocks and to get time for repairs, while the workmen, under the lead of the Amalgamated Association, seem to think that, if the production be stopped for a brief period, prices will advance and the manufacturers will grant their demands. As our readers know, the wages paid in the Western mills have been based on a sliding-scale varying with the price of iron. The manufacturers demanded that the scale should go down with the price of iron below the 2½ cent basis, and that the price for working mild steel, with the exception of sheets thinner than No. 20 gauge, be 10 per cent less than for working iron; that boiling be reduced 50 cents a ton to $5, and bar rolling 10 cents a ton, and decline with the decline in prices of iron. Muck rolling to be 10 per cent, instead of 12½ per cent of the price of boiling.

The workmen's association wanted changes that amounted practically to a new scale and basis.

The latest advices indicate a weakening on the part of the sheet mill hands, who are said to be considering the advisability of accepting the per cent reduction. The present time is extremely unfavorable for strikes. Wages are declining in almost every department of industry, and the manufacturers have reduced the "card" price of iron to 2 cents. There is no probability, except through a much longer strike than the men could stand, of prices advancing. We still believe that the strike will not be of long duration, but will probably be terminated by mutual concessions.

EAMES'S DIRECT REDUCTION PROCESS FOR IRON.

One of the most attractive problems in metallurgy has always been the economical production of iron directly from the ore without melting. From the time of CHENOT to the present day, ingenious metallurgists have vainly endeavored to make a commercial success of this apparently simple problem; lives and fortunes have been expended upon it; and though technical success has been again and again chronicled, the direct reduction process has not taken root and developed into a practical and profitable industry.

We must admire the perseverance and enthusiasm that inspire the latest and one of the most successful workers in this field, Dr. EAMES. The Eames direct reduction process, which is now in successful experimental operation at Sing Sing, New York, consists essentially in reducing iron ore in a common reverberatory furnace, 4 feet by 8 feet hearth, and 2 feet 3 inches high, by mixing it with from 15 to 20 per cent of impure graphite, and subjecting the charge, which is 500 pounds of ore and 100 of graphite, to a moderate heat for 2½ hours. The heat is not sufficient to fuse the siliceous gangue of the ore, or reduce phosphorus, and the iron sponge is fully protected from oxidation by the carbon of the graphite.

This in fact appears to be the point in which Dr. EAMES has advanced far beyond all his predecessors. He assures us that he obtains in bar iron practically the whole of the iron contained in the ore. The graphite is the impure variety found at Cranston, Rhode Island, and elsewhere, and can be delivered at the works at about $4 a ton. It contains from one to 16 per cent of iron, which is recovered. The fuel used is Siemens regenerative gas, produced from Cumberland coal; about 45 pounds of coal to the charge of 500 pounds of ore. A natural draught only is required.

The low temperature at which the reduction is carried on, and the fact that the charge is not rabbled, but remains undisturbed for the 2½ hours necessary to effect its reduction, make the wear and tear on the furnace and the labor account very light indeed. Dr. EAMES estimates that he can in a 50 to 100-ton plant produce sponge at a cost of about $16 to $18 a ton, and the hammered "half bloom" at $25 a ton.

DR. EAMES has tested this process on a sufficient scale, as he thinks, to demonstrate its complete commercial success. The advantages it presents over all previous efforts in this direction are—first, the most important one that there is no loss of iron from oxidation in the furnace; second, the inexpensive plant required for the production of commercial quantities; third, the low cost of labor and material used; and fourth, the small "repair account." While good ores are always desirable, yet as the sponge or "half blooms" from this operation are intended specially for use in the open-hearth steel process, even poor ores and those containing large percentages of phosphorus—which is not reduced at the low temperature employed—can be made available. Samples of bar iron of excellent quality, hammered directly from the sponge, can occasionally be made; but experience long ago demonstrated that it is impossible effectually to hammer the mechanically held impurities out of iron sponge, so that it will necessarily have to be melted in a subsequent operation.

We trust that Dr. EAMES may reap the reward that his untiring and intelligent perseverance merit, and that in his success the metallurgy of iron may make a substantial progress. Certainly, the work done thus far gives good promise for the fulfillment of these hopes.

EDITORIAL CORRESPONDENCE.

The trip on the Tennessee to South Pittsburg luckily fell on the only day of the meeting which permitted such an excursion to be comfortably made. Even that day (Wednesday) was not free from clouds, threatening rain; but none actually fell upon the party, and the intervals of sunshine made us thankful that not all was sunshine. To the pilgrims from the not exactly frozen, but still only recently thawed-out, North, the blaze of a Southern sun was too great a change for comfort, and clouds were welcome. Moreover, they added new elements of beauty to the river landscapes. In short, the trip was most delightful.

I remember expending my vocabulary, seven years ago, on the Institute excursion from Chattanooga to Rockwood, in the famous steamer, General Wilder. That was up-stream, and lasted nearly twenty-four hours. We bivouacked on the boat, and had more fun than victuals. Whoever wishes to know more of that celebrated journey may consult the files of our esteemed JOURNAL. He will find, among other things, a glowing tribute to the scenic loveliness of the Tennessee River, which present experience fully justifies me in repeating. Indeed, the trip *down* the river, around the Moccasin Bend, and through the precipitous and tortuous gaps by which the Tennessee traverses the Cumberland Mountain, is more picturesque, even, than the journey up-stream. True, we had on that former occasion the weird charm of the night, descending on the embowered shores, and the strange splendors of innumerable swarms of fire-flies illuminating the watery path from either side. And there was also the fascination (not altogether welcome) of the slow progress against the current—what Mark Twain calls the excitement of racing with islands. But these were circumstances outside of the scenery itself. There can be no doubt that the river below Chattanooga is more picturesque and romantic than above. It has the same peculiarity (in which it is unlike the Ohio and the Mississippi) of a dense border of foliage down to the water's edge; and it has, besides, a rocky, winding channel, between imposing or graceful hills, which present a succession of charming surprises, changing in aspect at every moment. In fact, I have seen nothing in that line to equal it. Certainly it may challenge comparison with the Columbia, the Hudson, the Delaware, or any other of our larger American rivers which traverse mountain chains. It will not be long (about one year of energetic work would accomplish it) before the improvement of the Tennessee at Mussel Shoals, below the passage through the mountain, will make it a great internal water-way, and will open more freely than ever to the productive industries of the Tennessee the markets of the Mississippi Valley and the West. No doubt it will then become more beautiful in the eyes of capitalists, and also better known to tourists. But we of the Institute of Mining Engineers—at least, we veterans of the *first* Chattanooga meeting—will continue to love best the sweet solitude in which we serenaded the fire-flies in 1878.

Chattanooga has doubled in population since that time, and on every hand are seen the evidences of enterprise and growth. As for the Chattanooga people, they have not grown any older—that is, the "grown-ups" have not. WILDER, for instance, flourishes still in his immortal youth. But there is a host of charming beings who had not "come out" in 1878, but have since bloomed like their own roses. Speaking of roses, I must observe that this is the first time in the history of the Institute when its meetings have been wreathed in flowers. Even the prosaic platform of the Iron, Coal, and Manufacturers' Association was made to look like a bower, and President BAYLES sat "like a blossom a-tilt among the leaves," the central vegetable of a big bouquet.

But I am getting out of the channel of the river-trip, on which I started. Our steamer, the Josh. V. Troop, set me a better example; for it kept the channel, under a skillful pilot, over all shoals and rocks and through all narrows, until we reached South Pittsburg. The cultivated fields in the middle distance were alive with strawberry-pickers. Tons and tons of strawberries were shipped from Chattanooga to Northern markets daily during our stay—and but for our presence, there would have been other tons to ship.

To return to the river—but no; I will not return to the river again to-day. He who writes on the Tennessee, like him who sails on it, meanders a good deal, but stops sometimes! *

CHATTANOOGA, May 22.

The Quantity of Fire-Damp in Fiery Mines.—Mr. George André, in the *Colliery Guardian*, says: The quantity of gas that escapes from the faces of work in fiery mines in one year is amazing. A German mining engineer has been making some measurements and calculations relative to this emission of fire-damp in mines not subject to blowers. He estimates that from the Neue Iserbohn Colliery there are given off annually about three hundred and twenty million cubic feet of carbureted hydrogen; and that the seven most fiery mines of Westphalia yield in the aggregate an annual quantity of not less than one thousand three hundred and eighty million cubic feet. This is an enormous quantity of a useful gas to throw wastefully away into the atmosphere. If it could be conveniently collected, it would furnish fuel in the most economical form, and would become a profitable product of the mines. The time may yet come when this gas will be made available.

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

The Designolles Amalgamation.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I have had occasion within the last month or so to make some tests concerning the applicability of Designolles's method of amalgamating gold ores as described in the specification of his U. S. patent, as well as in an article by Mr. Spilsbury, published in the ENGINEERING AND MINING JOURNAL some time ago. Although the ore available for the experiment had been roasted with great care, yet the treatment with the solution of corrosive sublimate, as suggested by these gentlemen, failed to give results even approximately approaching those claimed by them. Will some of the readers of THE ENGINEERING AND MINING JOURNAL who have worked with the Designolles process give their experience; for I can not in any manner explain the difference between the results claimed by those mentioned above and by myself, all the more so when I consider my having thoroughly roasted ore to work on, giving highly satisfactory results by chlorination, which, judging from Mr. Spilsbury's article referred to, can hardly be the case at the Haile mine. C.

COLORADO, May.

BUTTE, MONTANA, NOTES.

Special Correspondence of the Engineering and Mining Journal.

The statement in the report of the directors of the Union Pacific Railroad that Butte and its dependent smelting town of Anaconda furnished one tenth of the traffic receipts of the whole Union Pacific system, is the best evidence yet given of the wealth of this mining district. The report referred to reads as follows: "Remarkable as the statement appears, it is yet true, that two stations at its extreme northern end, Butte and Anaconda, twenty-eight miles distant from each other, and about fourteen hundred miles distant from Omaha, collect and receive annually an amount of earnings nearly equal to one tenth of the gross earnings of the entire Union Pacific system, so rich is the surrounding country in mineral wealth. Besides this, nearly the entire country through which the road runs is rich in live stock interests, which are constantly assuming greater magnitude and value. Interspersed in this mountainous region are fertile valleys, which are being gradually devoted to agricultural and like purposes. . . . The surplus earnings of this line for 1883 are reported to be $778,680, or $1274 per mile. . . . The interest charge on the bonds of the line was $388,010, leaving a net surplus of $390,670."

It must not be forgotten that the Northern Pacific Railroad also draws a large income from this point. This traffic entirely arises from the mines of the Butte District, a tract of country four miles square, as there is no outside territory tributary to the town.

There seems to be an impression abroad that Butte is now in full growth, and that the best opportunities for capital or enterprise have passed. Nothing can be further from the fact. For capital, there are profitable milling and smelting operations in abundance, and mines of medium-grade ores only requiring to be worked with sufficient capital to insure large returns. For the small capitalist willing to take chances on developing prospects, the openings are equally numerous.

It is not too much to say that, during the last twelve months, more paying silver properties have been developed than in any single year since the first development of the camp. And if the same can not be said of the copper mines, it is only because there are no custom smelters in the camp and no possible market for ores below 25 per cent in grade.

In this letter, I will mention only a few of the properties that, although located years ago, may be said to have been developed into paying investments during the past year; and I will take only those that lie within half or three quarters of a mile of the Alice and Moulton mines, the very center of the silver interests, and where, consequently, it might fairly be considered that any valuable deposits had long ago been opened.

The Goldsmith No. 1 has been developed during that period. A narrow but regular vein, the shafts and levels alone have produced some hundreds of tons, which have milled from 40 to 200 ounces. No stoping has been done, and the reserves are justly estimated at very high figures. This prospect was not very favorable on the surface, and owes its development entirely to the acumen and energy of Mr. George Tong, who leased and bonded the claim.

The Silver Safe vein, now in dispute between the Rising Star and Safe companies, is another of last year's developments. It is safe to say that, when work was stopped pending the suit, $100,000 net profit had been extracted by the two companies.

The Goldsmith, No. 2, Silversmith, and Amy, in this neighborhood, have been worked for a longer period, but all claim new developments of importance. All these veins seem to be feeders, running off in a northwesterly direction, of the great Rainbow lode, on which are the Alice and Moulton mines.

Another series of these feeders runs off in a southeasterly direction, and here again the developments of the past season have been very satisfactory. The owner of the Auraria has been sinking a shaft on ore that has improved from a narrow streak of 40 ounces, until at 200 feet depth its mill samples go a hundred ounces from an eight-foot vein. A portion to the north of it shows ore of the same grade, and the Badger State, to the east, has remarkably rich stuff on its dump.

North of the Rainbow, the Maria has been worked under lease, and has returned handsome royalties to the owners from ore frequently milling away up in the hundreds, and the Glengarry, with a 60-ounce ore-chute 200 feet in length in sight, is looking for capital to erect pumping machinery.

On the Rainbow lode itself, the Poser, which adjoins the Alice property on the east, is worked under lease, and is coming to the front this season with mill samples of from fifty to one hundred ounces; while the Elm Orlou, next east again, has enriched its owners this month with an eight-foot vein of manganese ore carrying from 60 to 200 ounces in silver.

BUTTE, May 16. MINER.

THE NEW MINING CODE OF MEXICO.*

By Richard E. Chism, M.E., Saltillo, Coahuila.

If internal commotion can be called life, the Mexicans have certainly lived more in the last seventy-five years than any other people. To the oppression of the Spanish viceroys succeeded the sanguinary tumults of the Revolution of Independence, after which the Supreme Congress bequeathed its heritage of uncertain power to the empire of Iturbide, the only one ever established by Americans upon American soil, with an American at its head. That short-lived reign was followed by years of ceaseless, bloody, and, to the superficial observer, meaningless revolutions—the deeper political and ecclesiastical significance of which it is beyond the scope of this paper to discuss. Then came foreign intervention, the ill-fated Austrian's brief supremacy, and the final triumph of the patriot cause under rugged old Benito Juarez, who crowned the victory of arms by a series of reforms breaking forever the temporal power of the church and ushering in the calmer era that has lasted from the first accession of Diaz to the present day.

During all those troublous times, the revolutionary ocean that rolled so deeply over all other relics of Spanish dominion had left almost unaltered the ancient laws of Spain, still lifting themselves above the tide, like landmarks of a flooded world. Many of these laws were obsolete; some were absurdly inadequate to the demands of modern commerce; and, above all, the cumbrous proceedings, which, deep-rooted in the ecclesiastical law, had overgrown the civil codes and customs, were smothering justice and throttling industry. These venerable abuses were not spared by the reforming hand of Juarez. A civil code was promulgated in 1870, and a code of civil proceedings followed, which, with some later reforms, has reduced the costs and delays of lawsuits to a minimum. Then came a penal code, and a code of penal proceedings. All these reforms were devised by competent experts, in the light of modern jurisprudence, and constituted important steps of real progress.

The establishment of codes of commerce and of mining was delayed for some time, partly because it was thought unwise to reform too much at once, and partly because no express authority was conferred by the Mexican constitution upon the national government to control these matters. In view, however, of the vast increase of commercial operations, brought on by the building of railroads, and the reluctance of foreign capital to invest in mines under the antiquated *ordenanzas* of 1783, which were still in force, the States at length, in 1883, consented to an amendment to the constitution by which the power of legislation upon mining and commerce was delegated to the Federal Government. Commissioners were appointed to form suitable codes, and in 1884 the codes of commerce and mining were adopted as part of the laws of Mexico.

The old *ordenanzas*, now entirely superseded by the new code of mining, were established by the King of Spain in view of the pressing necessities of the industry, which up to that time had been only governed by customs, derived partly from the ancient Aztecs and partly from Roman law. An imperfect code had been promulgated in 1760, having been arranged in form of commentaries by one Señor Gamboa. It does not seem even to have had the full authority of a law, although it was consulted and deferred to in most points even by the courts. The *ordenanzas* of 1783 were founded principally upon the work of Gamboa, which continued to be consulted as an authority in the many cases in which the true intent of the law was obscure.

The process by which the *ordenanzas* of 1783 were formulated is worth detailing as a splendid instance of Spanish routine. We learn from the preface to them that the Viceroy of Mexico, in a letter of the 24th of December, 1771, made known to the King of Spain the urgency of a new law to reform the radical and hurtful abuses that had crept into Mexican mining, and proposed the most efficacious means to do away with them. Having heard this, and after an opinion from the Supreme Council of the Indies in June, 1773, and also various representatives from the same viceroy in 1774, and another meeting of Council in September, 1776, a commission was appointed January, 1778, which was ordered to frame the *ordenanzas* as soon as possible. Accordingly they were presented in August, 1779, and received the royal approbation in 1783.

The *ordenanzas*, as promulgated, established the mining industry into a formal body, like the chambers of commerce. They established, also, a bank of habilitation for the encouragement of mining, created a college of metallurgy, and gave directions for the acquirement and working of the mines, conferred various privileges upon miners, and set aside a portion of the royal revenue from the mines to support the above-mentioned establishments.

The supreme control of mining matters was committed, under the viceroy, to a tribunal of mining, with its seat in the City of Mexico. Mining deputations were established in all mining centers.

The deputations and the central tribunal decided all questions of an executive, administrative, and economical nature, and had jurisdiction over discoveries, denouncements, claims, measurements, drainage, abandonment, bad working, and also over metallurgical works and water-rights.

Jurisdiction as to questions of law and fact between individuals was committed to the ordinary judges, who were to be guided by the prescriptions of the *ordenanzas* in all their decisions.

The real property of mines was established in the crown of Spain, and concessions of the right to work them were made to individuals who acquired the property by discovery and denouncement, or by denouncement of an abandoned mine, and retained the ownership so acquired as long as they complied with the conditions of the *ordenanzas*, as to keeping up the work and working in a proper way. The principle of possession being dependent upon continuous work, is said to have been handed down from the Aztecs.

On the establishment of Mexican independence, only such changes were made in the mining laws as were necessary to adopt them to a republican and federal form of government. The Central Mining Tribunal was abolished and its functions devolved upon the Mining Deputations of each State. In some States, the Mining Deputations were also abolished, and the whole control of mining committed to the ordinary executive authorities and the ordinary courts. The prescriptions of the *ordenanzas* relative to the mode of denouncing and working the mines continued in force, with scarcely any modification, although the interdependence of the various parts of the *ordenanzas* created great confusion in the application of those parts still in vigor. Some minor changes were made later on by the legislatures of several States, and two or three States even established formal codes of their own for the regulation of mining. There was also a diversity of practice in the several States relative to the taxes to be imposed on mining capital and on metallurgical works, and in some States the industry was seriously crippled by the onerous burdens laid upon it by injudicious legislation. This state of affairs as a whole was highly detrimental to the mining interest, and hence the new code of mining was designed, like its predecessor, to correct the abuses that had crept into Mexican mining. We shall best see, by discussing it, chapter by chapter, in what respects it differs from the old code; and I shall leave it to others to judge how far these differences are likely to be beneficial or the reverse.

I.

Chapter or Title I. of the new code treats of mines and mining property. The code is declared to apply to mines and deposits of all those inorganic substances which, in veins, beds, or masses of any form, constitute deposits whose composition is distinct from that of the country-rock; to placers of gold and platinum, with their accompanying metals, and of the precious stones. It also applies to metallurgical works of all kinds, and to sites where they can be constructed, to the waters extracted from the mines, and to those necessary for the drinking of workmen and animals, for motive power, or for any other use in metallurgical works.

The property of the above enumerated deposits is defined as forming a realty, distinct from the soil or ground in which or upon which they are found, even if they should belong to the same owner. These properties are to be acquired, originally, by denouncement and concession by the proper authorities, and subsist for an unlimited time under condition of working according to the precepts of the code, and the regulations to be dictated in accordance therewith. Mining property can be acquired and held by foreigners on the same terms, and subject to the same restrictions, with which they may hold other real estate in the republic of Mexico.

The owner of the soil has exclusive property in deposits of all kinds of mineral coal, in the rocks in place, and the materials of the soil, such as limestones, slates, porphyries, basalts, building-stone, earths, clays, sands, and in other analogous substances; also, in placers of iron and tin, or other bulky minerals; in the salts that exist in the surface, and in fresh or salt springs, superficial or subterranean; in petroleum and gas springs, and in thermal and medicinal waters.

In the exploitation of the above, the owner must be governed by regulations of police, and in the working of coal will be subject to the Mining Code, so far as it relates to the proper working of the mines and the security of the miners.

The same title also allows the work of exploration to be undertaken and mining property to be acquired in any lands, whether of public or private property; but, in the latter case, the owner of the soil must be indemnified for that portion of the surface that the miner may occupy or over which he may have to pass.

As will be seen, the mining property in Mexico is still held, as in the old ordinances, separate from the ownership of the soil. We have, however, a clearer definition of what mining property is, than in the old law, and a complete departure from its principles in respect to the ownership of coal mines. The property of coal mines, in the State of Coahuila, was granted to the owner of the soil by a decree of the legislature of the State in 1882, and this principle has been adopted in the new code. It has caused a great deal of dissatisfaction in Mexico, and may, perhaps, be repealed.

In respect to the ownership of mining property in Mexico by foreigners, we have them put upon the same footing as they are with respect to other property. According to the constitution of Mexico, foreigners are to have the same protection and guarantees as natives, with only the obligation to contribute to the public expenses in the manner prescribed by law, and to respect the institutions, laws, and authorities of the country. The government has, however, a right to expel any pernicious foreigner. This constitution was established in February, 1857. There had been, however, a law passed in August, 1824, by which foreigners were prohibited from acquiring lands situated within a zone of twenty leagues along the line that divides the republic from neighboring nations. To acquire such property, special permission must be had from the central government. This law was, in substance, re-enacted in 1854 and 1856; and, although there are some doubts as to its constitutionality in view of the articles of the constitution quoted above, still it has never been repealed, and is in force to-day. It was, not long ago, made the pretext for nullifying the sales of a portion of the State lands of the State of Coahuila to an American company or syndicate, and it would undoubtedly be held, under the provisions of this title of the present code, to vitiate the title of foreigners to mining property within the above limits. There is an old law in Mexico, said to be of Spanish origin, that provides that any foreigner who may remain more than two years out of the republic shall forfeit to the nation any real estate of which he may be possessed. But there is a special clause of Title I. of the present code that exempts mining property from the operations of the law just mentioned. Besides the above, I know of no restrictions upon the holding of real estate in Mexico by foreigners.

(TO BE CONCLUDED.)

* A paper read at the Chattanooga Meeting of the American Institute of Mining Engineers, May, 1885.

New Process for Extracting Gold and Silver from Copper Mattes.—London *Engineering* says that Mr. P. Manhès has taken out patents for a process by which he claims to extract gold and silver from copper mattes. The mattes are roasted, after grinding, with from one to three per cent of ammonium chloride, in a muffle-furnace. The heat is to be kept so low that the matte does not get red-hot, but all the ammonium chloride must be driven out. After this, the matte is not altered in appearance, but all the gold and silver are present in the form of chlorides, while the iron and copper remain as sulphides. The chlorides of the precious metals are then to be extracted by one or other of the well-known solvents, sodium hyposulphite being specially recommended.

THE CYANIDE AND BATTERY METHODS FOR THE DETERMINATION OF COPPER CONTRASTED.

Written for the Engineering and Mining Journal by Messrs. Torrey & Eaton, New York.

(*Continued from page* 318.)

II. THE EFFECT OF VARIOUS SUBSTANCES ON THE BATTERY PROCESS.

In each of the following experiments, the current produced by two cells of the ordinary gravity battery was employed to precipitate the copper.

All the solutions were made by dissolving the metals in hydric nitrate, and then evaporating to near dryness with sulphuric acid, and adding water. When cold, these were transferred to platina dishes capable of holding with ease 100 c. c., and were subjected to the passage of the current all night. Next morning, the solutions, after testing, were poured off, and the firm, bright coating of copper washed twice with water, and then two or three times with alcohol, and its weight ascertained.

Silver.—To note the effects of passing a current though a solution of copper containing much silver, ·700 gram copper and ·300 gram silver were weighed out and a solution prepared, which was then electrolyzed. The dish was covered at once with a chalky deposit of silver. Afterward, a sponge of the commingled metals was deposited in a mass non-adherent to the sides of the crucible. It could not be weighed.

A solution of ·970 gram copper and ·030 gram silver yielded 99·8 per cent instead of 97 per cent of copper, showing that even 3 per cent silver solutions can not be analyzed by this process without first separating the silver.

Of course, the silver can be easily removed by simply adding one or two cubic centimeters of hydrochloric acid, after the solution in nitric acid has been effected, evaporating down with sulphuric acid, and then diluting and filtering. When this has been done, the filtrate on electrolyzation yields the full percentage of copper.

Iron.—The presence of iron in solutions of copper having been found to be an obstacle to the rapid determination of the percentage of the latter metal present, when using the cyanide process, experiments were made on the efficiency of the battery method in such cases.

Two solutions were prepared, one containing 50 per cent of copper and 50 per cent of iron; the other, 95 per cent of copper and 5 per cent of iron. Both gave the full percentage, but the former was very slow in depositing its copper, requiring eighteen hours instead of twelve, the usual period.

Bismuth.—·300 gram bismuth and ·700 gram copper. The deposit obtained had a deep red-gray hue (much variegated); many crystalline tufts were dispersed over its surface; 75 per cent of metal was obtained, instead of 70 per cent of copper.

In order to determine whether small percentages of bismuth would interfere, a solution of ·970 copper and ·030 bismuth was prepared. The deposit had a uniform gray tint, and amounted to 97·9 per cent of the alloy, instead of 97 per cent.

This experiment shows that, in working alloys, mattes, etc., containing bismuth, by this process, it is necessary to determine the percentage of that metal in the deposit by analysis, in order to deduct it from the total weight, and thus arrive at the true weight of the copper.

Lead.—As lead is precipitated by sulphuric acid, during the evaporation, it would at first appear unnecessary to test such a solution for possible errors. But it must be remembered that, when precipitated sulphate of lead is washed with water, a not inconsiderable amount is redissolved, and in the case of rich lead ores might seriously contaminate the filtrate.

A solution of ·500 gram lead and ·500 gram copper was prepared and subjected to the action of the current.

Instead of 50 per cent of copper, 50·5 per cent of metal was precipitated. To still further test the action of lead on the process, a solution was prepared, containing ·950 gram copper and ·050 gram lead. This gave satisfactory results, no lead coming down.

Zinc.—A solution of ·300 gram zinc and ·700 gram copper, gave a firm, good-colored deposit of copper, and this (as might have been anticipated) amounted to 70 per cent.

Nickel.—Copper, ·500 gram, nickel, ·500 gram, worked well, and gave a good deposit of right percentage.

Arsenic.—·500 gram arsenic, ·500 gram copper. This was dissolved as usual and electrolyzed. A bright deposit was obtained, the current was discontinued, while a blue tinge was yet apparent in the solution, and the deposit was then washed and weighed. It amounted to 51·1 per cent of the alloy.

As copper was still left in the solution, this experiment proved that the arsenic does not (as is often asserted) precipitate after the copper, but with it. Like bismuth, arsenic in such a deposit must be determined by analysis; and deduction of the percentage thus found from the deposit will give the true percentage of copper.

Lime and Magnesia.—These do not interfere with the precipitation of copper by the battery or influence the accuracy of the process.

Ammonia.—A large percentage of ammoniacal salts in a solution of copper (such as would be occasioned by adding a large excess of ammonia to the nitric acid solution and then converting it into sulphate by evaporation with sulphuric acid) seems to prevent the deposition of copper from taking place rapidly, the solution becoming very turbid.

With a stronger current than that afforded by two cells, good results may be obtained. Hydrochloric acid has of course no injurious effect, being expelled during the evaporation with sulphuric acid.

(TO BE CONTINUED.)

Paper Water-Pipes.—Water-pipes made of paper have stood the test of practical application remarkably well. Dr. D. Lewis says that some years ago he laid a thousand feet of paper pipe, two inches in diameter, to convey water from a spring to his house and barn in the country. It has never leaked, and has never imparted any perceptible taste to the water. This pipe is made of strong paper wound into pipe form, and thoroughly soaked with tar. It becomes so hard and strong that it will bear a pressure almost equal to iron.

AMERICAN INSTITUTE OF MINING ENGINEERS.—III.

Thirty new members and four associates were elected at the Chattanooga Meeting.

The following papers were read by title at the closing session of the Chattanooga Meeting, the absence of the authors or the lack of time rendering it impracticable to read them in full. Our report, already published, includes all the papers read in full, and, taken together with the list below, constitutes a full report of the proceedings:

The Relative Value of Coals to the Consumer, by H. M. Chance, Philadelphia, Pa.
Note in Discussion of the Above, by Dr. J. P. Kimball, Bethlehem, Pa.
Quicksilver Condensation at New Almaden, by S. B. Christy, Berkeley, Cal.
Notes on American Blast-Furnaces, by John Birkinbine, Philadelphia, Pa.
Supplementary Paper on the No-Bosh Furnace, by W. J. Taylor, Chester, Pa.
The New Mining Code of Mexico, by R. E. Chism, Saltillo, Coahuila.
Notes on Some American Ore-Deposits, by C. M. Rolker, New York City.
Basic Refractory Materials, by Thomas Egleston, New York City.
Colored Mining Labor, by A. F. Brainerd, Birmingham, Ala.
The Centennial "Prospect," Coahuila, Mexico, by Dr. Persifor Frazer, Philadelphia, Pa.
The Influence of Temperature in Steel-Making on the Behavior of the Ingots in Rolling, by John W. Cabot, Bellaire, Ohio.
The Iron Ores of Pictou County, N. S., by E. Gilpin, Jr., Halifax, N. S.
The Sulphide Deposits of South Iron Hill, Leadville, Colo., by Francis T. Freeland, Denver, Colo.
The Claudet Process for Treating Roasted Pyrites, by Thomas Egleston, New York City.
The Blake System of Fine Crushing as Conducted at the Haile Mine, S. C., by E. Gybbon Spilsbury, Haile Mine, S. C.
Further Notes on the Clapp-Griffith Process, by R. W. Hunt, Troy, N. Y.

Combustion of Detonating Mixtures Formed with Coal-Gas.—Mr. A. Witz, in the *Comptes Rendus Hebdomadaires des Séances, de l'Académie des Sciences*, says that the exact knowledge of the combustion-heat of coal-gas enables us to determine the temperatures and the theoretic explosive pressures of detonating mixtures formed with this gas. The mixtures were taken at zero and at the atmospheric pressure. A mixture of 1 volume of gas and 6 volumes of air gave a temperature of 2064 degrees and a pressure of 8·6 atmospheres. A mixture of 1 volume gas with 10 volumes of air gave the temperature of 1514 degrees and the pressure of 6·5 atmospheres. These figures are lower than those hitherto admitted.

Proposed Metallurgical Exhibition in Germany.—The *Ironmonger* says: The Committee of the Association of German Iron and Steel Manufacturers has issued a circular to all the members in Germany inquiring whether they are in favor of a proposed German Industrial Exhibition in Berlin in 1888. Of 292 replies already received—chiefly from the largest establishments, including 174 blast-furnace works and 118 machine, foundry, wagon, and shipbuilding works—230 are against the scheme, 51 in favor of it, and 11 express indifference. Of the 174 blast-furnace establishments, only 19 consider such an exhibition to be desirable, while four are indifferent, the remainder declining to have any thing to do with the proposal. Of the 118 engineering establishments, only 32 are in favor of the scheme, 79 are against it, and seven reserve their opinions. Among the opponents of the scheme, are some of the largest machine-making firms in Berlin.

Competition of Irrigation Machinery.—The following will interest many of our machinery manufacturers, who, we trust, will not be behind foreign rivals in making use of this opportunity for widening our markets. In order to foster the practice of irrigation, the Italian Minister of Agriculture, Industry, and Commerce has decided to hold an international competitive exhibition of water-raising machinery and wind motors at Lecce, from September 15th to October 15th of the present year. The articles that are suitable for exhibition are comprised in the following five classes: (1) Well-sinking apparatus and pumps; (2) tools for boring and exploring; (3) wind motors suitable to be used in conjunction with water-raising engines; (4) swings, rope and chain pulleys, screw-boxes, water-raising wheels, hydraulic rams, pulsometers, and pumps; (5) plans and schemes for irrigation suitable for the provinces of Lecce, Bari, and Foggia. The prizes consist of gold and silver medals, and the government will spend £320 in the purchase of machines, besides buying two of the type that obtains the first prize in the first class. Intending exhibitors must apply to the Directory Committee, at the Royal Office of Agriculture, Industry, and Commerce, Rome, not later than August 15th, and must send a separate application for each article, accompanied with a general description of its purpose, the space required, the amount of power needed, and the like. The committee will undertake all the expenses of the trials, but exhibitors will have to defray all costs of transport.

A New Method of Separating Nickel and Cobalt.—M. Ilinski and G. Von Knorre, in the *Chemical News*, say: The solution containing nickel and cobalt as sulphate or chloride (iron and chromium must *not* be present) is mixed with a few c. c. of free hydrochloric acid. There is then added to the liquid, previously heated, a hot solution of nitroso-β-naphthol in hot acetic acid. The precipitate is allowed to subside, and when cold the liquid is tested with a further quantity of the nitroso-naphthol solution. If the precipitation is complete, the deposit is filtered off after some hours, and washed with hydrochloric acid at 12 per cent, first cold and then warm, until the nickel is removed, and lastly with hot water. As the precipitate is very bulky, the filter used must not be too small; in other respects, the washing is easy. To the dry precipitate are added a few knife-points full of crystalline oxalic acid, free from ash; the filter is folded up and incinerated cautiously in a tared Rose's crucible at a gradually increasing heat. It is then ignited in a current of hydrogen, and weighed as metallic cobalt. In the filtrate, the nickel is thrown down, apparently quantitatively, by heating with potassium hydroxide after the bulk of the acetic acid has been expelled by heat. It is preferable, however, to precipitate nickel and cobalt together in an aliquot part of the solution by means of potassium hydroxide, and to weigh the metals after reduction in a current of hydrogen. In another portion of the solution, the cobalt is determined as above, and the nickel is found as difference. The authors give a few experiments showing the sensitiveness of the reaction for cobalt.

THE GRIFFIN PULVERIZER.

The past few years have been very prolific in improvements in mining and milling machinery, crushers and pulverizers receiving their full share of the attention of inventors. It was natural that efforts should be made to find a more rapid and economical pulverizer than the old-fashioned stamps, and one that would grind finer than the rolls; hence a variety of centrifugal machines in which the ore is crushed by rollers and balls revolving vertically or horizontally, and disks or arms with paddles revolving vertically at a very high velocity, and pulverizing by impact on the paddles and by attrition of the particles among themselves; Blake multiple crushers; and vibrating drums of the Griffith type, recently described in the ENGINEERING AND MINING JOURNAL. Many of these machines possess features of great merit, and do satisfactory work each under conditions to which it is adapted. Thus, rolls are not suitable for fine crushing, but on the other hand they are no doubt the best for coarse crushing for concentrating. Most of the centrifugal pulverizers are best adapted for very fine crushing.

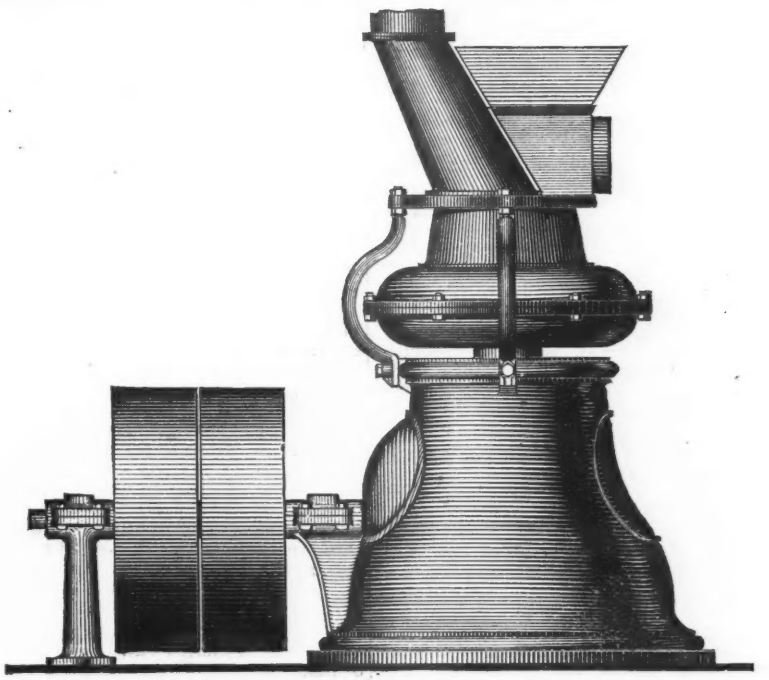
One of the most ingenious of these new pulverizers that has come to our notice is illustrated herewith. This machine presents some novel and valuable features. It consists, as is shown in the sectional drawing, Figures 1 and 2, of a central conveyer *a a*, within an annular shell *b b*, both of which rotate horizontally, but at different speeds and in opposite directions, by means of gearing or belting, as may be preferred.

The central conveyer is divided into four compartments or spouts, through two of which *e e* the ore enters from a central hopper, and through the other two *f f* the air enters behind each of the ore-spouts, and after sweeping the face *d d* of the ore held in the annular shell *b b*, is drawn out by means of a fan through the flues *g g*.

In operation, the material to be reduced is taken from an ordinary crusher and automatically fed to the conveyer through the passage *e* into the outer shell, where it immediately forms a solid annular wall *d d*, to make one of the grinding surfaces. The other surface is the unground material compactly held against this wall in the two sections of the conveyer *e e*, provided for that purpose.

The section is shown through one of the ore-spouts and one air-flue, at right angles to the ore-spout. The central conveyer is attached to the head of a vertical steel shaft, and makes about 120 revolutions per minute; the outer annular shell *b b* is attached to a sleeve on this shaft so that it can be driven at a speed of about 200 revolutions in the opposite direction from the feeding-spouts or conveyers. With these very moderate speeds, even if they were much higher than they are, the wear and tear of the running parts of the machine is slight, an advantage that can be fully appreciated only by those who have run the 1000 to 2000 revolution machines. The relative as well as the absolute speeds of the revolving parts appear from experiment to have a considerable influence on the fineness as well as on the amount of the material crushed. The work done has usually called for a fineness of from No. 50 to impalpable powder—as in the case of grinding wheat, etc.; but the inventor believes that it will crush to almost any degree of coarseness, the amount of draught and speed of revolution regulating the coarseness of the particles. The slower it runs, the coarser will be the grains. The suction of the air and the inclination given the division between the bottoms of the revolving parts prevent the accumulation of dust between them or its entrance into the bearings.

When desired, water can take the place of air, and the centrifugal force of the revolving shell can be utilized to draw the water, and with it the pulverized ore, out of the machine. The only parts of the pulverizer that wear, and those but slowly, are the adjustable plates at the outlets of the ore-spouts; indeed, the small amount of wear in machines of this



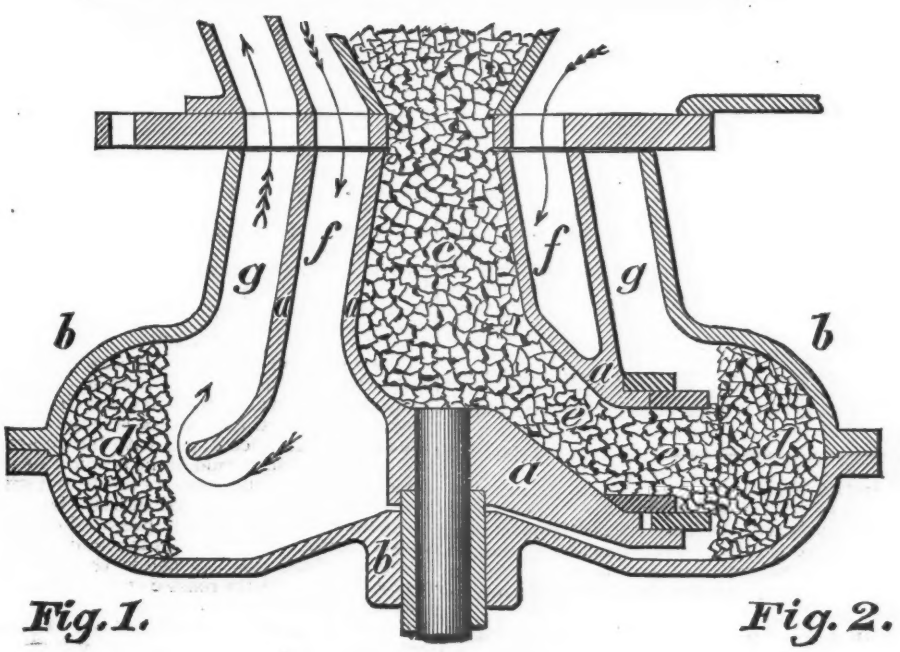


Fig. 1. *Fig. 2.*

THE GRIFFIN PULVERIZER.

class is quite remarkable, as is also the moderate amount of power required to run them—from 15 to 20 horse-power, as measured by the dynamometer—for a machine able to finely pulverize from 1 to 3 tons of ore per hour. The weight of such a machine complete is stated at about 3000 pounds, and its cost, including counter-shaft, pulleys, and blower, is quoted at $1000. This pulverizer appears to offer some exceptional advantages: it is extremely simple, easily transported, and inexpensive to erect; has a large capacity, equal to say 10 stamps, and can crush to any degree of fineness desired.

BOOKS RECEIVED.

[In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price?]

DEPARTMENT OF THE INTERIOR. MONOGRAPHS OF THE UNITED STATES GEOLOGICAL SURVEY. CLARENCE KING, DIRECTOR. VOLUME IV. *Comstock Mining and Miners.* By Eliot Lord. Washington. 1883. Quarto, pages xiv + 451 (including Index), and three Plates—I. Map of Placerville Route; II. Map of Carson Valley; III. Map of Washoe District, showing Mining Claims. $1.50.

Chapter I. The discovery of gold. II. The Gold Cañon Placer Mining Company. III. The discovery of the Comstock Lode. IV. The mining camp. V. The foundation of a great mining town. VI. The inevitable litigation. VII. Constructive and disorganizing tendencies. VIII. Interminable litigation. IX. Industrial conflicts. X. The mining city. XI. Six years of progress. XII. The contest with water. XIII. A controlling combination. XIV. A hazardous task. XV. A fortunate deliverance. XVI. The great bonanza. XVII. Feats of labor. XVIII. The laborers of Washoe. XIX. Pains and perils of mining. XX. A significant contrast. Appendix—Tables.

VOLUME V. *The Copper-Bearing Rocks of Lake Superior.* By Roland Duer Irving. Washington. 1883. Quarto, pages xvi + 464 (including Index), 29 Plates, and 37 Figures. $1.85.

Chapter I. Introductory. Literature. Chapter II. Extent and general nature of the Keweenaw series. Chapter III. Lithology of the Keweenaw series. Section I. Basic original rocks. Section II. Acid original rocks. Section III. Summary view of the original rocks of the Keweenaw series. Section IV. Detrital rocks. Chapter IV. Structural features of the three classes of rocks of the Keweenaw series. Chapter V. General stratigraphy of the Keweenaw series. Chapter VI. The Keweenawan rocks of the south shore of Lake Superior. Introductory. Section I. Keweenaw Point. Section II. The region between Portage Lake and the Ontonagon River. Section III. The South Range. Section IV. The region between the Ontonagon River and Numakagon Lake of Wisconsin, including the Porcupine Mountains. Section V. Northwestern Wisconsin and the adjoining part of Minnesota. Chapter VII. The Keweenawan rocks of the north and east shores of Lake Superior. Introductory. Section I. The Minnesota coast. Section II. Isle Royale to Nipigon Bay. Section III. Michipicoten Island and the east coast of Lake Superior. Chapter VII. Relations of the Keweenaw series to the associated formations. Section I. To the newer formations. Section II. To the older formations. Chapter IX. Structure of the Lake Superior basin. Chapter X. The copper deposits. Notes.—This memoir aims at a general exposition of the nature, structure, and extent of the series of rocks in which occurs the well-known native copper of Lake Superior.

An Account of the Strata of Northumberland and Durham, as Proved by Borings and Sinkings. F–K. Issued by the Council of the North of England Institute of Mining and Mechanical Engineers. Newcastle-upon-Tyne. 1885. 8vo, pages 329 (including Index).

The Petroleum Industry of Southern Russia. By Charles Marvin, late Special Correspondent of the "Morning Post" in the Caspian Region, Author of "The Russians at Merv and Herat," "Reconnoitring Central Asia," "The Russian Campaign against the Turcomans," etc. [Reprinted from "Engineering."] London: Offices of "Engineering." New York: John Wiley & Sons. Quarto, pages 43, and the following Illustrations: (1) Purifying Tanks, Messrs. Nobel Brothers' Refining-Works, Baku; (2) the Petroleum Region of Southern Russia; (3) an Oil Fountain at Baku, Nobel Brothers, No. 25 Well; (4) the Petroleum Industry at Baku: Plan of Pipe Lines; (5) Pumping-Well at Balakhani; (6) Nobel Brothers' Depot at Tsaritzin; (7) General View of Nobel Brothers' Main Station at Balakhani, showing Well-Derricks, Pipe-Lines, etc.; Petroleum Distilling and Refining-Works at Baku; (8) Messrs. Nobel Brothers' Pier for Loading Oil at Baku; Messrs. Nobel Brothers' Petroleum Distilling and Refining-Works, Baku; (9) Map of Messrs. Nobel Brothers' System of Distribution; (10) Plan of Messrs. Nobel Brothers' Central Depot at Orel.

Report of the State Engineer [E. Sweet] *on the Canals of New York*, 1884. Transmitted to the Legislature, January 26th, 1885. Albany. 1885. 8vo, pages 137 and a Map, Profiles of the New York State Canals and Feeders. [Assembly Document, No. 38.]

The Largest Gas-Holder in the World.—Ashmore, Benson, Pease & Co., Limited (the new proprietors of the works, etc., of Ashmore & While), Stockton-on-Tees, have informed the London *Ironmonger* that there is now in process of construction at their establishment a gas-holder that will be the largest in the world, consisting of four lifts 250 feet in diameter by 175 high. This huge structure is for the South Metropolitan Gas Company.

The Electric Light in Mines.—The installation in the lead mines of Mechernich, Eifel, is giving great satisfaction. The space lighted is about 650 meters in length by 340 in breadth, and 104 in depth, and this is accomplished by means of two Siemens arc lamps of 3000 candle-power each. The total cost of the installation has been £550, which includes also 10 arc lamps of 350 candle-power each in the galleries, while the cost of the light per hour is said to be 1s. 11d. as against 2s. 6d. for oil, etc. Another installation of nine Siemens lamps is in course of projection.

Production of Manganese Copper.—With the object of producing manganese copper in a readier and less expensive way than at present, Mr. G. A. Dick melts pure copper in a crucible with ferro-manganese containing a large percentage of manganese, and in the presence of silicon. When pouring out into ordinary molds, the manganese will be found to have combined with the copper, and the silicon with the iron, the latter forming a layer upon the manganese copper. The greater the amount of the silicon present, the more perfect is the separation, though even so small a quantity as one per cent of silicon as compared with the manganese present suffices for the desired effect. In some cases, the ferro-manganese contains in itself sufficient silicon to produce the necessary reaction upon the iron so as to set the manganese free to combine with the copper.

MODERN AMERICAN METHODS OF COPPER SMELTING.*

By Edward D. Peters, Jr., M.E., M.D.

CHAPTER IV.—CONTINUED.

The too common practice of keeping the smelting department so far in advance of the ore supply as to require the breaking into and utilization of roast-heaps in which the ore is still red-hot, and just at the most active and profitable stage of calcination, necessitates the employment of a strong body of laborers to bring water and constantly drench the smoking ore, in order to make it at all possible for the other workmen to shovel it into their barrows, and must be condemned as unnecessary and productive of more extensive trouble and expense than almost any other practice at our smelting-works.

Among these sources of extra expense are the doubled cost of taking down and transporting the roasted material; the burning and rapid destruction of tools and cars; the medical bills claimed by the workmen who suffer from such unhealthy employment; and, far greater than all, the injurious effect on all subsequent steps of the process, which will be referred to in the chapter on Smelting in Blast-Furnaces.

On the other hand, the only possible advantage that can be claimed is, that some two or three weeks' interest on the value of the ore is saved.

When the heap is properly cooled, the mass of ore, which, while still hot is often almost as hard and tough as a wall of solid rock, crumbles to pieces with a single blow of the pick, and is wheeled in barrows from the roast-heap to the furnace-car.

When the heap is sufficiently cooled, it is "stripped" by removing not only the fines that formed its cover, but its entire surface to such a depth as is necessary to include all material that has escaped oxidation. This unroasted material is made up largely of the fines forming the cover, and which, though often quite thoroughly oxidized on the top of the pile, are so agglutinated with sulphur as to be unfit for the furnace. The covering of the sides is seldom sufficiently roasted, and this is especially the case near the ground, where the ragging itself, to a depth of several inches, is frequently found unscathed. The angles of the pile are also seldom in good condition, and many isolated patches and bunches of ore will be found that the careful foreman will reject. This statement, however, refers rather to the results of the ordinary practice than to those that can easily be obtained by close attention to details and by enlisting the interest of some intelligent foreman. As already explained, the fire will find its way to every nook and corner where sulphides still exist, if only the conditions are favorable. The author recollects with satisfaction the mortification displayed by his roasting foreman but a few months ago, at the unusual occurrence of a few hundredweight of fused, and a still smaller amount of raw, ore in a heap of some 200 tons.

A half-fused, honey-combed condition of the upper part of the heap, presenting the appearance of a skeleton of gangue from which all mineral has been melted out, is a certain indication of a proportional amount of matte below. This molten material naturally gravitates to the bottom of the heap, and is there found in masses of greater or less extent; often of many tons' weight, though, in such a case, warning would have been given during the roasting by the irregular sinking of the heap, and even by depressions and crater-like cavities on the surface. This molten product is very properly termed "heap-matte," and varies neither in appearance nor composition from the similar product of a blast-furnace. A popular impression prevails among certain foremen, and even assayers, that the light, honey-combed material that remained after the melting out of its sulphide constituents is rich in copper, but the contrary is true. The unfused skeleton merely represents the siliceous slag, while the molten sulphide mass below is the equivalent of the matte, the purity and value of either product depending on the temperature to which the ore has been subjected, and the consequent perfection of the smelting or liquation process. This fact is sustained by the following assays of samples of considerable size:

No. 1.		*No. 2.*	
Original ore before roasting...	21·6 copper.	Original ore before roasting...	18·6 copper.
Siliceous skeleton.....	7·3 "	Siliceous skeleton	6·4 "
Heap-matte	34·7 "	Heap-matte.....	36·6 "

The formation of this heap-matte in any considerable quantity is very detrimental to the roasting process, but is easily avoidable; for it is invariably caused by either too much or too little air. In too many instances, no particular notice is taken of its occurrence, and it is sent to the smelting-furnace mixed with the well-roasted ore. This is exceedingly bad practice, and should on no account be permitted, as it is totally impossible to foresee the grade of matte that will be produced by the smelting process when this unroasted sulphide is mixed in unknown and varying quantities with the properly prepared charge. If the percentage of the furnace mixture be such that the addition of this raw matte does not lower the tenor of the product below the desired standard, it may then, of course, be fed with the roasted ore, but should be kept strictly by itself, and added to each charge in weighed quantities. Any infringement of this rule gives rise to the formation of a matte varying greatly in its percentage of copper as well as in its entire composition, and deranges not only the smelting process, but seriously affects the regularity of the matte concentration operations.

The heap-matte may occur in such masses that serious difficulty is experienced in breaking it up, especially as it retains its heat for a great length of time, and in this condition is almost malleable, yielding and flattening under the blows of the sledge like a block of wrought-iron. Much expense and annoyance may be spared by stripping the central molten mass thoroughly of all inclosing ore, and allowing it to cool for two or three days; at the expiration of which time, it will be found quite brittle and comparatively easy to deal with. Thorough and repeated drenchings with water will produce even better results; but it should be borne in mind that a considerable proportion of the cupriferous contents of calcined ore is in a soluble condition.

When, through carelessness or inexperience, heap-matte is formed, it must be either treated together with the matte produced from the first fusion in the blast-furnace, or set one side until a sufficient amount is collected to form a small heap by itself, and be re-roasted. It should, on no account, be mixed with the raw ore, as it demands a different treatment, and will either cause irregularities in the ore-roasting or will pass

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through that process unaltered and with no perceptible diminution in its percentage of sulphur.

The proportion of strippings and other unfinished products of heap roasting that may be considered allowable was determined experimentally by simply weighing the finished and unfinished portions of half a dozen consecutive roast-heaps, averaging about 240 tons each. About 10 per cent of fines were used for the covering layer in each case. The total amount of unroasted material, as given in the following table, shows that even a portion of the fines is thoroughly oxidized :

	Percentage unroasted.	Percentage roasted.	No. of days heap was active.
No. 1	9·6	90·4	64
" 2	6·6	93·4	71
" 3	8·4	91·6	70
" 4	9·0	91·0	61
" 5	7·6	92·4	67
" 6	11·4	88·6	57

The figures have been slightly corrected, without altering their relative values, to make the aggregate in each case exactly equal 100 per cent, which, of course, can never be precisely attained by adding the weights as actually arrived at.

While these results are taken from ordinary every-day work, it should be understood that they can only be attained by the most careful attention in the roasting-yard. The proportion of the product rejected as unfit for the smelting-furnace at some works might be even less than in the cases just cited, and the reason may be readily recognized in the low grade of the product from the fusion, and the constant complaints of the impossibility of keeping the matte up to the proper standard. A selection in such cases as rigid and thorough as in those just tabulated would result in the rejection of from 25 to 60 per cent of the entire heap. An allowance of ten per cent may therefore be considered reasonable—although demanding more than ordinary care and skill—and of this, three fourths should be fines. The stripping should be performed in a cleanly and systematic manner, and to an extent several feet in advance of the line of excavation, and the material thus removed piled on one side to be subsequently screened on the first calm day ; for the least wind causes a heavy loss when handling this half-oxidized powder. The fine part is again used as a covering, for which it is much better suited than raw ore, while the much smaller coarse portion is added to the nearest heap in process of erection.

It will be readily seen that very much more fine ore is produced during the processes of mining and crushing than can be used for the purpose of covering material, especially as only a small proportion of the latter is sufficiently oxidized at each operation to be passed on to the smelting-furnace. The problem of the best means of utilizing this constantly increasing amount of fine ore in works unprovided with calcining-furnaces is often a pressing one. It will be referred to again, under the heading, "The Treatment of Pulverized Ores."

The roast-heap, when once tolerably cool, is torn down and loaded into the furnace-car with great celerity. Three or four men trundle the barrows, while double that number wield the pick, shovel, and hammer. It is the duty of these laborers to break all partially fused masses or lumps that are too large for proper smelting into fragments of a reasonable size, as especially determined by the metallurgists. There is not time, or space, or opportunity on the charging-floor of a blast-furnace in full operation to attend to any duties beyond those immediately connected with weighing the charge and filling the furnace, and many serious irregularities in the smelting may be traced to an omission of this simple and obvious precaution.

A careful and humane foreman can do much to mitigate the annoyance and suffering to which the workman are subjected during the labor of tearing down a heap, by moving the point of attack from one to the other side of the pile, according to the direction of the wind, as well as by keeping the fresh surface that is engaged well sprinkled with water, to settle the fine ore-dust, which is exceedingly acrid and biting from its high percentage of sulphates. At best, this labor is the most disagreeable and wearing connected with ordinary smelting, and no laborer should be kept at such employment for more than three or four days in the week, and should be changed to some other task during the remaining time. Aside from the common tools already enumerated, long, stout steel gads and a few heavy sledges are needed to break up the central portion of the structure, which, although not fairly fused, is often so stuck together as to require considerable labor for its removal. At no other work are shovels so rapidly destroyed, and it is to this place that all partially worn though still serviceable tools are sent to terminate their existence.

After the complete removal of the old heap and any slight repairs that may be required to restore the ground to its former level, a thin layer of raw fines is again spread on the old spot, and the fuel arranged for a fresh pile. The estimate of costs for this process, as given below, is based on the treatment of a very large amount of ores, varying greatly in composition, and under very various circumstances, and is purposely made somewhat liberal to allow for the occurrence of bad work and various other mishaps that are certain to occur in a greater or less degree. It is based upon a plant of 100 tons daily capacity, and on the assumption of only a short distance for transportation of the roasted ore to the smelting-furnace :

Estimate, 100 tons per 24 hours.

Transportation of ore to heaps (2 men on car), and weighing the same (1 man), 3 men at $1.50	$4.50
Labor—Building and burning heaps— 4 men at $1.50 = $6.00 ; 2 men at $2.00 = $.400	10.00
Fuel at the rate of 12 cords per 240 hours at $5 a cord	25.00
Removing and loading roasted ore, 14 men at $1.50	21.00
1 foreman	2.50
Transportation to furnace and weighing (same as to heap)	4.50
Oil, repairs to cars and track, etc	3.25
Miscellaneous labor, screening, repairing, etc., 2 men at $1.50	3.00
Renewing shovels and other tools	4.00
Repairs on gads, bars, and tools	2.75
Total	$80.50

Or 80½ cents a ton of raw ore. On deducting the cost of the double transportation, as well as that portion of the labor belonging to the loading of the cars for the smelter, and for repairs to cars and track, etc. —none of which expenses actually belong to the process of heap roasting as often estimated—the entire cost is at once reduced to 50 cents a ton, or thereabout.

The degree of desulphurization arrived at by this process is seldom accurately determined, owing to the difficulty and expense of obtaining an accurate sample, and to the fact that the experienced eye can very correctly judge of the success of the roast, while any defect in the process will become immediately apparent in the lowered tenor of the product of the succeeding fusion. Owing to the scarcity of accurate investigations on the subject, the following determinations were made :

No. 1. A heavy pyritous ore, from the Ely mine, Vermont, consisting principally of magnetic pyrites and chalcopyrite. Burned in a heap of about 300 tons for eleven weeks. After stripping off the surface, a sample of the roasted ore as delivered at the smelting-furnace was taken. The following was the assay of the ore before and after calcination :

	Before roasting.	After roasting.
Sulphur	32·6 per cent.	7·4 per cent.
Copper	8·2 "	9.1 "
Insoluble	27·0 "	31·1 "

The condition of the copper in the roasted sample was also determined in this case, as follows :

Sulphate of copper	1·3 per cent.
Oxide of copper	2·1 "
Sulphide of copper	5·7 "
Total	9·1 "

No. 2. A heavy pyritous ore, being almost pure iron pyrites containing minute quantities of copper, silver, and gold, from the Phillips mine, Buckskin, Colorado, was roasted for six weeks in piles of 60 tons, and was used as a flux for siliceous silver ores. A careful sample of the roast yielded sulphur, before roasting, 46½ per cent : after roasting, 11 per cent.

A considerable number of similar tests give corresponding results, showing that a very fair degree of desulphurization can be attained by this crude and ancient method, although, of course, still better results will be reached in ores containing less pyrites, and making the fact evident that, in heap-roasting as well as in the calcination of pulverized sulphides, the copper is the last metal present to part with its sulphur, and that a large proportion of this still remains in the condition of a sulphide after nearly the entire iron contents have become thoroughly oxidized. This agrees perfectly with all investigations relative to the comparative affinity of sulphur for the various metals, and is in no other metallurgical process more strikingly exemplified than in the so-called "kernel roasting," as practiced at Agordo, in Italy. There, the mechanical separation of the copper from its accompanying pyritous gangue is effected by stopping the process of calcination at the exact point where the entire iron contents have been oxidized into a soft earthy material, while the copper remains in combination with sulphur in a hard, metallic condition, and, most singularly, retreats into the center of each lump of ore, forming a heavy and solid kernel, which can easily be separated from its earthy envelope by inexpensive mechanical means. As this interesting process is not practiced in this country, and in all probability is not suited to our domestic conditions, the student desirous of pursuing the subject will find in Plattner's *Röstprocesse*, as well as in a paper by the author in the *Mineral Resources of the United States* (A. Williams, Jr., 1883), further information.

The appearance of a freshly opened heap of well-roasted ore is characteristic, although difficult of description. It should present a strictly earthy, irregular surface of a blackish-brown hue, the scarcity of air preventing the oxidation of the iron to the red sesquioxide. This is a decided advantage in a reverberatory smelting-furnace, where the powerful carbonic oxide atmosphere of the blast-furnace is wanting to reduce it to the protoxide, and thus fit it for entering the slag, the higher oxide being infusible at ordinary smelting temperatures. It is, in fact, principally a magnetic oxide, and while the greater part of the contents should adhere closely together, and, when disturbed, should come out in the shape of large lumps, no sign of actual fusion should be visible, and the largest mass should fall into fragments at a few blows of the hammer. The more siliceous pieces of ore will have taken on a somewhat milky and opaque look in place of the ordinary vitreous appearance of quartzose minerals, and the veinlets of sulphides traversing the same will be found oxidized throughout. The solid lumps of pyrites, if carefully broken, will usually display a series of concentric layers, completely oxidized and earthy on the outside, and gradually acquiring greater firmness and a slight sub-metallic luster, which culminates in a rich kernel near the center of the fragment. This resembles strongly one or other of the grades of matte as produced from the smelting-furnace, and usually contains the greater part of the entire copper contents of the lump. The silver—if any be present—is also concentrated in a marked degree, though, so far as the author's own investigations extend, not with the same remarkable perfection as the less precious metal. The examination of a characteristic lump, such as just described, which contained before roasting about 4 per cent of copper, yielded the following interesting results :

The outer earthy envelope contained traces of copper ; the medium concentric layers contained 1·2 per cent of copper ; the central sub-metallic kernel contained 69·6 per cent of copper.

An imperfect roasting is quickly detected by the presence of more or less fused material at certain portions of the heap, while elsewhere there exists no cohesion between the lumps of ore, which fall apart like so many paving-stones. A certain metallic appearance will also be noticed, very different from the dull, earthy character of the properly burned pile. Although a large proportion of the contents may exhibit quite a brilliant red color, as though an unusually perfect oxidation of the iron had taken place, a mere weighing of one of the lumps in the hand will quickly undeceive the least experienced observer, and its fracture will show that the effect of the fire was only surface deep, while the entire interior remains unaltered. A careful study of different roast-heaps, wherever opportunity offers, will soon render the student skillful in judging by eye of the degree of success attained by this process, and in after-life frequently furnish him the key to the cause of the unsatisfactory tenor of the matte produced from his furnaces. No metallurgical process is more dependent upon an efficient and conscientious foreman, and the best results are usually obtained by selecting some intelligent and ambitious man from the roast-yard laborers and holding him strictly responsible for results.

AERATION UNDER PRESSURE FOR PURIFYING WATER.

The inhabitants of Philadelphia will soon have an opportunity to enjoy the benefits of sweet and pure drinking-water, thanks to the efforts of the Water Department of that city, which has for a long time been perplexed with the question how to improve the quality of the water supply and put an end to the general complaint against impure water. The problem has been solved by Prof. Albert R. Leeds, of the Stevens Institute, Hoboken, New Jersey, who, after much careful study and persistent experimenting, has hit upon a most ingenious yet simple, efficient, and economical plan for purifying the water supply of cities, towns, and villages by the introduction of air under pressure into the water, likewise under pressure and motion.

The practicability of the system has been fully demonstrated at Hoboken, where the first experiments were made leading to its final adoption by the water-works of that city, where it is now in successful operation. The system has also been thoroughly tested in Philadelphia, and the results have proved so satisfactory that the Water Department of that city has made arrangements for introducing the improvement on an extensive scale at its several pumping stations. The contract for building and furnishing the several air-compressing engines required for this purpose has been awarded to the Ingersoll Rock Drill Company, of New York, its "straight-line" single air-compressor having been selected by its engineers as the best suited for this kind of work. Three of these have already been delivered, and the others will follow at an early date.

This system, which may be aptly called the "aërating process," is equally adapted for the purification of stagnant water in lakes, ponds, reservoirs, tanks, etc., so that its general adoption wherever there is foul and impure water is much to be desired, and will be hailed as a blessing by all those communities that suffer from drinking impure or stale water, no less than from breathing the pestilential emanations of stagnant lakes and ponds.

In view of the vast importance of the subject and the daily growing necessity for such relief as this system offers, the parties owning and controlling the patents have organized themselves into a permanent company, called the United States Pure Water Supply Company, for the purpose of properly introducing the system whereever it may be needed. The company's head-quarters for the present are at No. 10 Park Place, New York.

RECOVERY OF SULPHUR FROM WASTE PRODUCTS.

Chemists connected with the alkali manufacture have long sought for some thoroughly practical and economical process for recovery of the sulphur that is finally contained as calcium sulphide in the "waste" of the alkali-works. Many processes have been worked out and tried with more or less success, several leading chemists having devoted themselves to researches on the subject, but so far, no method has given complete satisfaction. It is now more than ever important that some such relief should be given to the hard-pressed Leblanc soda process as would result from enabling its users to dispense with a great part of the pyrites they now purchase, and probably there is at present more attention and study devoted to the matter than ever before. One proposal recently made, and embodied in a German patent is to obtain sulphur from the "waste" by first decomposing it so as to obtain sulphureted hydrogen gas, and then to pass this gas over heated sulphates of alkali or alkaline earth. A reaction then takes place, by which the oxygen of the sulphate combines with the hydrogen of the sulphureted hydrogen, forming water, while at the same time free sulphur is produced, and the sulphate is reduced to a sulphide. If air is then passed over this residual sulphide, the heating being kept up, oxygen is again absorbed, and the sulphate renewed, ready for the reaction on a fresh lot of sulphureted hydrogen. In practically carrying out this process, gypsum (calcium sulphate) is used, packed in pieces in a system of pipes or retorts heated to redness, through which alternate currents of sulphureted hydrogen and air can be passed, the exit end being connected with a condenser for the liquid sulphur. The reaction that takes place in this case is shown by the chemical formula $CaSO_4+4H_2S=CaS+4H_2O+4S$. The flow of sulphureted hydrogen gas is so regulated that there is always an excess of it present, in order to prevent any chance of the oxidation of any portion of the liberated sulphur. The gas that thus passes in excess, and is not decomposed, is drawn back again and repassed with the rest of the sulphureted hydrogen, so that it is not lost. When all the gypsum in one set of retorts is reduced to calcium sulphide, as shown above, the sulphureted hydrogen is passed through another set, while the calcium sulphide is again oxidized to sulphate, and again made ready for its work. During this reoxidation of the calcium sulphide, a considerable evolution of heat takes place in the retorts or tubes, and this heat is utilized by so combining two sets of apparatus that the heat thus produced in one set is used for keeping up the temperature of the other.

A Working Colliery at the Antwerp Exhibition.—The *Colliery Guardian* says: The colliery at the Exhibition is a great attraction. It was a happy idea of MM. Desenfans and Soupart to exhibit a complete model of the underground workings of a coal mine, not in miniature, but in full size. There is the drawing-shaft, down which the visitor may travel into the darkness of the workings some 30 feet below ground. Here he will find every thing as it exists in an actual mine, less the fire-damp. A wag the other day suggested the propriety of introducing a little of the latter occasionally, just to show the effect of an explosion, but I have not learned that the suggestion has yet been acted upon. There are roads, faces of work, and drifts in progress; even the water and the dirt have not been forgotten, as the visitor will learn on returning to the daylight. Real miners have been provided to show how the work is performed, and horses not less real are there to haul the trains of tubs to and fro. Such an exhibit was sure to attract by its novelty, but the result is even greater than the expectation of the promoters. The pit-bank is crowded from opening till closing time by persons patiently waiting their turn to descend. When Old London is worn out at South Kensington, a colliery might be transported thither with every chance of its turning out to be equally attractive. *Verb. sap.*

THE AUSTRALIAN NEVADA.

Mr. Wilkinson, the New South Wales government geologist, who has just returned to Sydney from a visit to the Barrier Ranges, states in his report on the Albert District: Silverton, which is the commercial headquarters of the silver mining portion of this district, is situated 13¼ miles from the boundary line of New South Wales and South Australia, or about 590 miles in a straight line west-northwest from Sydney, and 257 miles northeast from Adelaide. It occupies a convenient position upon the main road from Adelaide to Wilcannia, and is near the western margin of a large tract of broken hilly country, generally known as the Barrier Ranges, which, almost surrounded by open salt-bush plains, extend for 150 miles in a north-northeast direction, varying in width up to 110 miles; there are also several salt-bush plains here and there between some of the ranges. Nearly the whole of this country consists of metalliferous formations, but it is chiefly on the southwestern portion that the silver and lead lodes have yet been discovered. The geological formations consist of metamorphosed clay-slates and talcose mica-schists, with intrusive masses and dikes of granite and diorite that traverse the sedimentary rocks generally in a northeasterly direction, but sometimes in all directions, forming almost a net-work of dikes. In places, the schists pass into gneiss, which imperceptibly changes into porphyritic granite. The silver-bearing lodes occur chiefly in the mica-schists in the vicinity of the granite dikes. It would seem as though the contraction of the rocks upon cooling after the intrusion of the igneous rocks resulted in the formation of irregular fissures, which became filled with the metallic sulphides and other minerals composing the lodes. By the enormous denudation that these formations have undergone, valleys have been eroded, leaving intervening rough rocky ranges from 100 to 500 feet high, and exposing lodes at all levels. Thus, we are enabled to see portions of lodes from above which hundreds of feet of rock have been removed, and as at the different levels they exhibit similar characteristics as regards irregular thickness and length, this mode of occurrence will be found to continue as they are followed below the present surface of the ground. The lode-stuff consists chiefly of porous brown oxide of iron, or gossan, and occasionally quartz containing carbonates of lead and copper, galena, and chlorides of silver. The latter are of light or dark-green color, and occur in veins and thin scales, or in grains irregularly disseminated through the ore. The miners readily recognize them by their waxy appearance when cut with a knife. These oxides, carbonates, and chlorides occur in the upper portions of the lodes, and have resulted from the decomposition of the sulphides of iron, lead, silver, and copper of which the lodes will be found composed below the water-level, or the level to which oxidation by atmospheric influence from the surface has reached. In one mine, the water-level has been met with at a depth of 133 feet; in another, at 72 feet. Mr. Wilkinson has visited nearly all the mines and claims in the district, and, notwithstanding the cautious manner in which he expresses himself, it is clear that the area of silver-bearing country is much larger than was supposed. Mr. Wilkinson says the ore can not conveniently be smelted on the field, owing to the scarcity of fuel. At present, it is carried a distance of from 298 to 330 miles, at a cost of £5 a ton, to Adelaide, for shipment to England or Europe.

Mechernich Mining Company (Rhenish Prussia).—The annual meeting of this company was held on April 30th. Out of the net profits—1,272,407m.—a dividend of 12 per cent a year was declared for 1884. The company produced during the year 964 tons potter's ore and 26,200 tons pig-lead, 5000 tons of the latter having been sold to English consumers. The number of men employed was 3297.

A Geological Study of the Cascade Mountains.—Capt. Clarence E. Dutton, of the Ordnance Department of the army, who has been engaged for ten years in the study of the geology of the great Plateau region of the West, has gone to California, under instructions from Major Powell, Director of the Geological Survey, to make a study of the geological phenomena presented by the Cascade Mountains, the greatest volcanic range upon the globe.

Great Electric Light Suit.—The Edison Electric Light Company brought suit, May 2d, in the United States Circuit Court of this district against six infringing companies supplying incandescent electric light, and against nine users of the lights of the infringing companies. The six companies sued were the United States Electric Lighting, United States Illuminating, Consolidated, Swan Incandescent, Remington, and Schuyler. The users selected for a test were the Union Club, Morimer estate, and others. It is expected that other actions will be brought to sustain the validity of the Edison patents; for the six companies charged with infringement have put out in various parts of the country a considerable number of isolated plants for incandescent electric lighting. Mr. Edison claims the original discovery, the principle of subdivision of the electric current by high resistance, and he has twenty fundamental patents. About $15,000,000 are involved in the litigation as it stands, and there are ten or a dozen distinct and separate issues brought against each defendant.

Electrotyping.—The electric machine used by the Electro-Metallurgical Company is the Elmore dynamo, which has the power of depositing one and a half tons of copper in one week, and this is the finest and purest metal that can be found. The copper is deposited in tanks holding upward of sixty thousand gallons of solution, the largest tanks being 15 feet deep by 10 feet wide by 12 feet in length. These large tanks are used for coating large pieces of machinery with copper, such as the rams for the recoil machinery of the big guns on board Her Majesty's ships of war, which, if not copper coated, would soon be destroyed and oxidized by sea water. A coating of as much as half an inch in thickness is laid upon these. They range from 6 feet to 10 feet in length, and are from 6 inches to 18 inches in diameter, but the plant is arranged to coat rams up to 24 inches in diameter. An ingenious system of overhead travelers enables these heavy pieces to be suspended in the tanks and moved about with great facility.

FURNACE, MILL, AND FACTORY.

The Ingersoll Rock Drill Company, of New York City, has carried off the highest honors at the New Orleans World's Fair, where its handsome exhibit of rock drills, air-compressors, and other mining machinery attracted general attention. The judges have awarded it three first prizes, namely, a gold medal for the best rock drill, another for the best air-compressor, and still another for the best display.

One of the Bethlehem (Pa.) Iron Company's furnaces that has been idle several months was lighted June 2d. The stack will be ready for blast on Saturday.

H. K. Porter & Co., of Pittsburg, Pa., are running on full-time. Among their orders, are some for locomotives with cylinders 5 inches diameter and 10 inches stroke. They are also building a number of 20-ton locomotives for the Panama Canal Company, for hauling dump-cars. These locomotives have four driving-wheels and two rear pony-wheels supporting the fuel bunker, and the water is carried in a saddle-tank. Two locomotives of this design have been in use at the Panama Canal, and have proved to be well adapted to work on track laid in soft ground. A number of small locomotives for hauling larry cars on the coke-ovens of the H. C. Frick Coke Company are building by the same company.

The contract for the new iron viaduct over the tracks of the Pittsburg, Fort Wayne & Chicago, the Chicago, Burlington & Quincy, and the Chicago & Alton railroad companies at Chicago, Ill., was awarded to the Keystone Bridge Company, of Pittsburg, Pa., for $27,993, this company being the lowest bidder. The Keystone Bridge Company has completed and is shipping an iron bridge to Brazil, South America.

The Pittsburg Steel Fencing Company has leased the barbed wire works of H. B. Scutt & Co., at Pittsburg, Pa.

Mr. D. U. Jennings, agent for the Golden Gate concentrator, has a machine set up at the New York Metallurgical Works, Nos. 104 and 106 Washington street, this city, where it may be seen and tests made.

James H. Smith, Secretary, and L. J. Johnson, Treasurer, of the Shawnee Coal and Iron Company, with some other parties, have formed the Union Iron-Works Company. They have purchased the old Newark Machine-Works, at Newark, Ohio, and are already at work overhauling and rearranging with the view of making it a first-class machine-shop, and will probably engage in the manufacture of haulage plants for mines. Their pattern will probably be similar to the plant so successful at the Shawnee mine.

The Roller Chain Belting Company, of Columbus, Ohio, reports an increased inquiry for its Legg mining machine. It has recently shipped one to Scotland. It also reports increased sales of the Legg rotary power drill.

The machine-shop of the Allentown (Pa.) Rolling-Mill Company resumed work June 1st.

Clement B. Grubb, of Philadelphia, has purchased from the heirs of the late A. Bates Grubb, of Philadelphia, the furnaces at Mount Hope, Pennsylvania, together with 2500 acres of land and the right to take ore from the Cornwall Ore-Bank, for $300,000.

The Bay View Rolling-Mills, of Milwaukee, closed June 1st.

The Old Colony Iron-Works at Somerset, Mass., have shut down for one month.

Work on the new Bessemer steel plant of Schoenberger & Co., Pittsburg, Pa., began last week.

Proposals will be received until June 10th, by the Ordnance Office, War Department, Washington, D. C., for the manufacture of twenty breech-loading steel field guns, caliber 3·2 inches. The rough-finished forgings for these guns will be furnished by the United States.

The Calumet Iron and Steel Company's entire works at Cummings, near South Chicago, Ill., were closed down May 30th, and will probably not open again until there is a greater demand or higher prices.

At a recent meeting of the Montreal Water Commissioners, tenders were received for a new pumping-engine, as follows: The Corliss Engine Company, an engine of 10,000,000 gallons capacity, at $50,000; 8,000,000 capacity $42,000. Knowles Company, 10,000,000 capacity, $50,000; 8,000,000 capacity, $45,000. Reliance Works, 8,000,000 capacity $57,000; 10,000,000, $75,000; and an engine with all the latest improvements, of 10,000,000 capacity, at $75,000. H. B. Worthington, 8,000,000 capacity, $37,500; 10,000,000, $50,150. Holly Works Company, 8,000,000 capacity, $44,000; 10,000,000 capacity, $47,500; G. F. Blake; 8,000,000, $38,500; 10,000,000, $42,000. The representatives of the Holly Works and H. B. Worthington were present and explained the capabilities of their respective engines.

It is stated that the cost of the iron-work of the Brooklyn Elevated Railroad erected was 3·22 cents a pound. The lowest contract on the New York roads was 3·4 cents.

LABOR AND WAGES.

The wages of the employés of the Union Foundry and Machine Company, at Catasauqua, Pa., were reduced 10 per cent June 1st. Some of the men are only working eight hours a day.

Three hundred and fifty coal miners at the Soddy mines, in Hamilton, County, Tenn., have struck against a ten per cent reduction.

The scale adopted by Western Nail Association at Cincinnati last week has just been published. The reduction proposed by the manufacturers is much larger than was generally supposed. The card rate runs down to $1, whereas last year's agreement was on a basis of a $2.50 card rate. The proposed scale advances and declines one cent for each 25 cents per keg. The workman have refused to accept it, and every nail factory in the West but one has closed down.

The iron and nail mills at Wheeling, West Va., and vicinity shut down for an indefinite time May 30th. The owners of the Bellaire Rolling-Mill signed the scale of the Nailers' Union, but it is understood they will not run. Other mills refuse to sign either the Amalgamated Association scale or the United Nailers' scale. Both sides seem firm, and a long suspension of work seems inevitable. The nail factories in and contiguous to Wheeling number seven, including the Mingo (Ohio) Mills, one bar mill, two sheet mills, and one bar and sheet combined.

The iron workers' strike in the West continues, with varying reports. It appears from the mass of telegrams from different districts that but few mills have accepted the Amalgamated Association scale, and they are mills that are but little affected by it. The probability is, that nothing will be done for a short time yet until the mill repairs are completed, and then efforts will be made to reconcile the opposing interests. We incline to the belief that the strike will not be a long one, and that the manufacturers, while conceding some points, will secure the essential parts of their scale.

TRANSPORTATION NOTES.

The statement of the earnings of the Marquette, Houghton & Ontonagon Railroad for the fiscal year ended February 28th, just issued, shows: Gross earnings, $819,198; decrease, $82,960; expenses, $488,907; decrease, $20,916; net earnings, $330,291; decrease, $62,044. There was charged to construction for the year $85,835, and for equipment $1104; surplus on February 28th, $352,675.

The annual meeting of the Pennsylvania Company operating the lines of the Pennsylvania Railroad system west of Pittsburg was held at Pittsburg, June 2d. The annual report showed the total number of miles operated or controlled, 2790·6; total revenue of the Pennsylvania Company, being the profits of operating lines, not the gross earnings, together with the net earnings of the Star Union Fast Freight Line, interest and dividends on securities owned, and rent of real estate and equipment owned, $1,155,749.23; total expenses, including interest on bonds, interest on the car trust, cars, and losses on lines operated, $1,865,969.61, showing a deficit for the year of $710,220.38. The loss to the Pennsylvania Company in operating the Pittsburg, Fort Wayne & Chicago Railroad was $124,807.40, and the loss in operating the Cleveland & Pittsburg was $205,847.93. The decrease is mainly owing to the heavy falling off in the freight tonnage of coke, ore, and manufactured iron. The only change in the directory was the election of Henry D. Welsh to succeed Henry M. Phillips, deceased. The organization of the board was postponed for the present.

The stockholders of the Chesapeake & Ohio Canal met at Annapolis, Md., June 1st. According to the report, the present administration has effected a saving of $36,000 during the past six months, as compared with the corresponding months of last year. It has also paid out to employés and for materials over $55,000. The rent account has been more carefully attended to than for years past, $10,000 having already been collected—nearly as much as was collected during the entire year of 1884. This has been done notwithstanding the fact that the repairs in the canal have been more thorough and complete than for several years past. At present, the canal is in splendid navigable condition. The entire receipts from December 8th, 1884, to the present time amount to $53,741.91; the payments for the same period to $55,264.22. The canal is involved in litigation, and the appointment of a receiver is asked.

COAL TRADE NOTES.

ENGLAND.

According to a telegram from London, dated June 4th, a fire broke out in the Philadelphia Colliery, near Durham. Three hundred miners were in the pit. The fire occurred in the top seam of the Peggy pit, and it was caused by an explosion. It was followed by a rush of water in immense volumes into the Sutton seam. The miners, men, and boys in this seam were, however, all taken out alive. Working parties are now laboring zealously to stay the flood of waters rushing into the Maudlin seam. The latest advices from Durham state that 12 more colliers have been rescued, and that only 13 are now imprisoned in the mines. The water is supposed to come from the old workings of an abandoned colliery; but whether that connects directly with the sea is not yet known.

MARYLAND.

Hitchens Brothers, of Frostburg, who operate the Miller mine near that place, are engaged in opening another mine near Midland. The property is leased from the George's Creek Coal and Iron Company. The inclined plane is partly constructed, and the opening into the hillside is making. The capacity of the mine will be from 500 to 600 tons daily.

The official report from the canal office at Centerville shows that during May 397 boats, carrying 45,552 tons of coal, cleared from this port. The revenue was about $12,000. The tonnage for the corresponding month of last year was 59,534 tons.

OHIO.

Ashinhurst & Roush, millers and coal merchants at Manchester, have made an assignment. Their liabilities are estimated at $65,000 and their assets at $75,000.

PENNSYLVANIA.

ANTHRACITE.

In the case of the Commonwealth *ex rel.* Samuel Gay, Mine Inspector, *vs.* Joseph Brady, operator of Crystal colliery at New Castle, Judge Pershing, of Pottsville, has decided to continue the preliminary injunction heretofore issued to restrain the working of the mine at Crystal colliery, because there would be danger in carrying on the work.

Col. Robert Gorrell died suddenly of heart disease, June 2d, at Unionville. He was connected for a number of years with the operation of several coal mines in Schuylkill County.

An explosion of gas occurred in No. 4 slope of the Susquehanna Coal Company's mines at West Nanticoke, June 4th, which did much damage to the mine and severely burned five workmen, three of whom will probably die. Superintendent Williams is making an investigation.

BITUMINOUS.

Mr. Samuel Langdon, who has leased a tract of coal land at Hopewell from the Cambria Iron Company for a period of ten years, has begun to develop it. A trestle and tipple are erecting. Hopewell is on the Huntingdon and Broad Top Railroad. The coal is said to be of excellent quality.

COKE.

There has been a decrease of from 660 to 530 cars a day in the shipments of coke by the Connellsville syndicate. Independent operators' shipments have come down from 180 to 150 cars a day.

The Atlas Coke Company has succeeded the Dunbar Coke Company in the ownership of the Colvin works. Under the new management, the Colvin works has been withdrawn from the Coke Producers' Association, and will be operated independently.

WEST VIRGINIA.

The restraining order granted by Judge Jackson, at Parkersburg, May 8th, in the case of the Gaston Gas-Coal Company of West Virginia against the New

England, Fairmount & Western Gas-Coal Company of Baltimore City has been vacated. The order thus set aside was to restrain the New England Company from building a railroad along the bank of the Monongahela River at a point where the Gaston Company has a track, the Gaston Company claiming that it was an encroachment upon the banks and slopes which supported their tracks.

The brake-band of the Kanawha Mining Company incline, 800 feet long up a steep mountain, broke last week, and two car-loads of miners were carried up the mountain at great speed. Nine jumped out, four remaining. Three were killed, one was fatally hurt, and a number slightly injured.

GAS AND PETROLEUM NOTES.

Exports of refined, crude, and naphtha from the following ports from January 1st to May 30th:

	1885. Gallons.	1884. Gallons.
From Boston	2,645,681	2,507,322
Philadelphia	47,954,968	24,534,641
Baltimore	3,753,478	3,493,229
New York	139,242,471	134,409,716
Total exports	193,596,598	164,943,908

PENNSYLVANIA.

The Fuel Gas Company has under consideration a plan for laying a thirty-six-inch main of cast-iron pipe from the eastern end of Penn avenue along that street to the Point, at Pittsburg. A number of small lines, connecting with it, will cross the Monongahela River and be led into another thirty-six-inch main, which will be laid up to Jones & Laughlins's mills at South Twenty-seventh street.

The local Board of Fire Underwriters at Pittsburg has adopted the following rules in regard to the government of the use of natural gas in manufacturing establishments:

First. That when gas is to be introduced into any premises, a tank governor or regulator shall be placed as remotely as possible from the building, by which the pressure shall be reduced to not exceeding two pounds.

Second. A safety-valve shall be placed between the governor or regulator and buildings, which will blow off when the pressure exceeds two pounds.

Third. A mercury gauge must be placed inside of buildings to indicate the exact pressure in the pipes.

Fourth. All pipes leading from the regulator and into the mills shall be of as large diameter as possible, and all pipes on entering a building shall be elevated and carried overhead and above all furnaces and boilers.

Fifth. All pipes, valves, and fittings shall be carefully inspected when the work is completed, by the Secretary of this Board, before the privilege is given to use natural gas.

The Fire Marshal and Secretary of the Board are required to examine all premises where the use of gas is desired, and where the requirements are complied with, a certificate is issued to the insured to the effect that the arrangements for the use of gas are in accordance with the regulations of the Board. The new rules reduce the maximum pressure of gas a pound below that fixed by the first rules, which were adopted in August last. Up to the 16th of the past month, 580 certificates have been issued, and there has not been a fire or an accident caused by gas in any establishment that has a certificate.

Natural gas has been introduced into the melting-furnaces at Ripley & Co.'s tableware factory at Pittsburg.

The Fuel Gas Company offers to give Pittsburg and Alleghany City free gas to burn their garbage.

Another gas well has been struck by the Pittsburg Plate Glass Company at Burchfield farm.

Thomas Brown, of the Brown Oil Company, has failed for nearly $500,000. The property, if sold for its worth, would fetch, it is said, about $400,000.

GENERAL MINING NEWS.

CALIFORNIA.

MONO COUNTY—BODIE DISTRICT.

BODIE CONSOLIDATED.—Official advices state that the water has been pumped out of the 700-foot level (Lent shaft), and that work will begin there soon.

BULWER.—The superintendent's report shows that during the week ended May 25th there were employed at the mine eight miners and one carman at $4, and one foreman at $5 a day. The west cross-cut from the north drift, 200-foot level, has been driven 19 feet. The ground is hard, and shows some stringers of quartz in the face. The uprise from the tunnel level has been extended 18 feet, and is now 101 feet. The filling is hard blue porphyry, with clay and quartz on each wall. The width of the fissure is 4½ feet between the walls, and it stands very nearly vertical.

CONSOLIDATED PACIFIC.—In the drift running to cut Pacific ledge No. 2, a vein has been cut 16 inches in width, which is most promising. The average of three assays taken from wall to wall shows $57.34. When the No. 2 vein has been reached, drifting will begin on both veins.

SAN BERNARDINO COUNTY.

BONANZA KING.—A five-foot vein of ore has been struck on the sixth level. A contract is let to sink the main shaft 100 feet from the eighth to the ninth level. The mill will resume work soon.

BIDWELL.—This mill at Ivanpah is about starting up on ore from the old Alps mine and the Lizzie Bullock.

CAMBRIA.—The owners of this mine have leased the old Ivanpah Consolidated mill at Ivanpah, and will at once start it up on Cambria ore.

KERR.—Connection has been made at the depth of about 100 feet, showing a large body of mineral.

MCFARLANCE.—Part of these mines at Ivanpah may be leased.

MOZART.—On the Mineral Point mine of this group, they are sinking and running on the ledge a tunnel that will make a depth of about 200 feet when in another 50 feet. They struck in the face of the tunnel about 6 inches of high-grade ore, with indications of widening.

SIERRA COUNTY.

YOUNG AMERICA.—The mine is doing well. The mill will be running about the first of July. A wire rope tramway, 2500 feet long, is to be erected to convey the ore from the mouth of the tunnel to the mill.

COLORADO.

CLEAR CREEK COUNTY.

Colonel Dumont is running two sixteen-stamp mills testing ores at Empire.

CASCADE.—It is stated that this company contemplates resuming operations in Cascade District, where the company has a group of mines.

RED ELEPHANT.—The ground recently opened by the sinking of the Schwartz shaft gives promise of being the best ground yet opened on Red Elephant Mountain. Indications have been very favorable throughout the entire sinking for large bodies of ore of a good grade in close vicinity to the shaft.

CUSTER COUNTY.

BASSICK.—Dispatches to the Denver *Tribune-Republican* announce that there is some discontent among the employés of this company, who have received no pay for nearly three months. Their claims, together with the liens of Messrs. Hendrie & Bolthoff and other items, aggregate a total of not far from $30,000.

DOLORES COUNTY.

GRAND VIEW.—The smelter has purchased 100 tons of the product of the Leila Davis mine, to be delivered by June 1st. Mr. Grierson has also made an option arrangement under which he will buy as much more of the ore of the Davis as he desires, not to exceed one half of the output of the mine. In the Grand View mine, the long tunnel driven this winter has cut the vein 400 feet in, and a winze that will be 175 feet in length is sinking from the Phœnix down to the fourth level, through which last the ore from all the workings will be surfaced. The date of the starting up of the smelter is uncertain.

PASADENA.—The smelter is running continuously and shipping bullion.

RICO REDUCTION.—The new machinery is on the way to the works. As soon as it is erected, the company will be thoroughly equipped to treat all ores by the lixiviation or the amalgamating process.

GUNNISON COUNTY.

YANKEE GIRL.—Six feet of ore has been struck in the fourth level. The ore is of unusual richness. A new plant of hoisting machinery has been ordered and will be placed in position. The new plant will be of sufficient power to work one thousand feet. The old plant will be worked on the National Belle for a while.

LAKE COUNTY.

We condense the following from the Leadville *Herald:*

CARBONATE.—The sinking of the shaft to explore a second or lower ore-body on the Yankee Doodle mine has been abandoned. The shaft pierced the limestone, and drifting on the quartzite contact was prosecuted, but no pay-ore was encountered.

HOMESTAKE.—Work has been resumed to-day on this mine, ten miles northwest of Leadville, where the fatal snow-slide occurred some time ago, killing several men. The parties that have gone out to work have secured the lease on the mine. They will begin at once to construct new cabins out of the wrecks of those destroyed by the snow-slide, and as soon as accommodations have been provided, the working of the mine will begin.

LA PLATA MINING AND SMELTING COMPANY.—Since February, when the first rich ore (from 50 to 100 ounces silver per ton) was discovered in the deeper workings, similar discoveries have been made at two other points. These discoveries have given a new impulse to research work in the deeper ground, and the present outlook augurs well for the continuance of satisfactory returns. The April output is estimated to leave a profit to the mine of $16,000. Returns for April: Ore received from the company's mine, 500 tons; total ore received, 3300 tons; ore smelted, 31,000 tons; bullion produced, 325 tons; silver produced, 124,000 ounces. These statements were published by the company in England.

LEADVILLE CONSOLIDATED.—The product during May was about $7000.

OPULENT.—The owners having quarreled, the appointment of a receiver is asked.

SMALL HOPES.—It is estimated that the net earnings for May will reach $100,000.

PARK COUNTY.

EXCELSIOR.—Two car-loads of the machinery for the new mill on this company's property have arrived in Alma, and the rest is on the way from Cleveland, Ohio.

LAST CHANCE.—The mill was to start on the 28th of May.

PITKIN COUNTY.

CONNEMARA.—This mine on Aspen Mountain, one eighth of which was recently purchased for $20,000 by J. D. Morrissey and Joseph Reynolds of Chicago, has struck mineral at a depth of 450 feet that assayed 311 ounces in silver and 12 per cent in lead.

EMMA.—A body of ore has been struck, the richest that has ever been discovered in the mine. The working force is to be increased.

SAN JUAN COUNTY.

Mathews & Webb, ore and bullion buyers, of Denver, have leased the sampling-works of E. T. Sweet, of Silverton. They took charge of the works June 1st, and are prepared to sample ore on short notice, and will also pay the highest market price for all kinds of ores.

MOLAS.—The sale of this mine for about $30,000 is reported.

PRIDE OF THE WEST.—This company has sold to the Colorado Silver Mining Company, Limited, of Glasgow, Scotland, all its property in Cunningham Gulch for $500,000—$250,000 in cash, which has been paid, and $250,000 in stock of the new company. The stock of the new company is placed at £200,000, or nearly $1,000,000. The principal office of the company will be at Glasgow, with Silverton as a branch office.

DAKOTA.

LAWRENCE COUNTY.

FATHER DE SMET.—The report of the superintendent shows that, during the week ended May 22d, 2025 tons were milled. A later report, dated June 2d, says that bar No. 208 contained 978·35 ounces of gold, the result of the run of the mill for the first half of May—a good beginning, and which insures a larger output for the month. The outlook at the mine shows no important changes. The ore-breasts in Golden Gate and Eureka open cuts continue to look favorable, and are producing as well as ever. The rest of the mine shows about as usual, with every thing in fine condition for working to advantage. The east cross-cut, fourth level, is out about 115 feet, the last few feet showing considerable ledge matter coming in, but as yet of not much value.

IDAHO.

CAMAS NO. 2.—The mill erected at this gold mine was expected to start last week.

COLEMAN.—The mill has started up. Another ore-body, which promises to be more extensive, has been discovered in the Vienna mine.

HAILEY CONCENTRATING-WORKS.—The works are running day and night. The company has recently

purchased 1000 tons from the dumps of the Queen of the Hills and Minnie Moore tailings, which it is said can be located at a fair profit.

RED ELEPHANT.—This group of mines, near Bullion, is to be leased.

SILVER KING.—The remainder of the machinery for the concentrator has arrived. The works will start up soon, and make shipments of ore to Wood River regularly.

ILLINOIS.

ST. LOUIS SONORA GOLD AND SILVER MINING COMPANY.—Licenses to incorporate have been issued to this company of East St. Louis to lease, hold, and sell mining property, water-rights, and privileges; capital stock, $1,500,000; incorporators, John N. Rofinger, George F. Robenson, and James M. Carpenter.

MEXICO.

Mr. Paul Holder, Superintendent of the Vallecillo silver mines, and his son, George Holder, were murdered near Salinas, Mexico, May 30th. They had arrived only a few days before from New York City, to assume control of these mines, which are about sixty miles south of Laredo, Texas. They were murdered by thieving bandits while *en route* from Salinas station to the mines.

CANDEMANIA.—This mine, in Chihuahua, has, it is said, been bought by an English syndicate for $800,000, and will soon be bought out by a stock company.

HIDALGO.—The results thus far obtained by the company, which was incorporated last December, are said to be encouraging. The property is situated at Parral, and consists of two separate claims, the Philadelphia and the La Placa. It is proposed to erect lixiviating-works for the reduction of the ores at the Philadelphia mine. Contracts for the machinery have been made, and it is hoped that the mill can be completed and running by the first day of October of the present year. Messrs. Fraser & Chalmers, of Chicago, are under contract to ship the plant complete by June 10th. Rolls will be used for crushing instead of stamps, and the capacity of the mill is fully guaranteed to be thirty tons a day.

MICHIGAN.

COPPER MINES.

ALLOUEZ.—The mine closed down on the first of June, but it is stated that it will continue to work on a restricted lease to be granted to Messrs. Watson & Walls.

PENINSULA.—Reports are, that the company is about to begin working the mine again, and that it has already started the engines, pumps, etc., preparatory to running.

IRON MINES.

The following statement, published by the Marquette *Mining Journal*, shows the amount of iron ore and pig-iron shipped from the lake ports of that district for the season, up to and including Wednesday, May 27th:

	Gross tons.
Marquette	37,323
pig-iron	200
L'Anse	1,785
St. Ignace	16,429
pig-iron	45
Escanaba	105,059
Total	160,841

INDIANA.—Workmen are placing new machinery in the mine.

WEST CHAPIN.—Work has again begun on this property. The showing is said to be excellent.

MONTANA.

LEWIS & CLARKE COUNTY.

A meeting of the prominent business men of Helena was held recently for the purpose of discussing the feasibility of erecting a smelter in that city. Committees were appointed to ascertain facts and figures from the various mineral districts in the vicinity of Helena, to find the probable cost of erection of a first-class smelter, and to interview merchants and mining men on the subject.

MEAGHER COUNTY.

MAIDEN REDUCTION COMPANY.—According to the *Argus*, the company is not in good condition financially, and there is a prospect of the property being sold to satisfy the creditors. The indebtedness is only about $1500, and the building, mill-site, and machinery are estimated to be worth $7500 at a low valuation.

SILVER BOW COUNTY.

The Union & Northern Pacific Railroad has arranged a new rate for the shipment of ore and matte to Chicago. Copper ore will be sent from Butte to Chicago, at $14.50 per net ton, and copper matte for $16.50 per net ton.

GOLDSMITH.—Negotiations for the sale of this mine are reported.

NEVADA.

A press dispatch from Chicago, dated June 3d, states that William Whalen, from Nevada, asserted that he owned six gold mines in that State and interested A. M. Billings, of this city, in them. Billings agreed to purchase them for $300,000. He advanced $13,000, when he discovered that the mines did not exist. Billings began suit to recover the money advanced, and Whalen instituted proceedings to secure the remainder of the $300,000. The court gave Billings judgment for $13,000.

EUREKA COUNTY.

EUREKA CONSOLIDATED.—The official report for the week ended May 23d, by Superintendent F. Robbins, shows that there were 119 car-loads of ore from tributers hoisted. The mine is so crowded with ore that some of the tributers will have to be idle until some of it is taken away. The furnace continues to run successfully, and so far shows that it is better than the expectations. A telegram dated May 30th reports a shipment of 400 bars bullion. The company's new furnace is a combination of the Rachette and Piltz furnaces. As regards its size and capacity, the following figures may prove of interest:

	Inches.
Length inside jackets	81
Width inside jackets	40
Hight of jackets	42
Hight of furnace from bottom of crucible to feed-floor	210
Number of tuyeres	9

Smelting capacity, from 60 to 70 tons.

The water-jacket opens on top to admit of the extraction of the scale formed from the carbonate of lime in the water. A novelty in Nevada in such works is the manner adopted by Mr. Robbins and the foreman of the plant, Mr. W. J. Stevens, of drawing off the smoke, dust, and fumes, by a flue below the feed-floor instead of above it, as in old-style furnaces.

HUMBOLDT COUNTY.

Willow Creek is steadily coming to the front as a mining camp. New and important developments in many of the claims are reported.

OHIO.—This mine is making regular shipments of its high-grade ore to Salt Lake City, while the second-class ore is stored in the mine and on the dumps.

WILD DEER.—Development-work continues, and the mill is running successfully.

LANDER COUNTY.

MANHATTAN.—The miners have been notified by the company that they must work for $3.50 a day after the 10th inst., or the mines will be closed. The company has not employed any miners by the day for nearly two months, though a large number have been employed at contract and tribute work.

LYON COUNTY.

In the District Court at Virginia City, the case of Bray *against* Schlomberg was on trial May 25th. Bray sues to recover $45,000, the value of ore taken from the William Penn mine in Silver City during the past two years by defendant.

STOREY COUNTY—COMSTOCK LODE.

BALTIMORE CONSOLIDATED.—A test run at the roasting-furnace showed that nearly 90 per cent of the assay value can be saved. They have steam up at the works, and are engaged in hoisting the ore to the surface, now stored on the 400 level, of which there are about 90 tons.

CHOLLAR.—Work was resumed May 25th in the face of No. 3 cross-cut on the 3000 level of Chollar, and preparations are making for active work in the Chollar croppings, where there is in sight much good ore.

CONSOLIDATED CALIFORNIA & VIRGINIA.—For the week ended May 23d, there were extracted 571 tons of ore and shipped to the Morgan mill 601 tons 1530 pounds. The assay value of the ore milled during the week, as per samples taken from the batteries, was $22.55 a ton. The amount of ore extracted under the Jones contract was 878 tons. Shipped to the Eureka mill under this contract, 964 tons 1435 pounds. The assay value of the ore milled during the week, from samples taken from the batteries, was $18.62 a ton.

HALE & NORCROSS.—Reports dated May 28th state that the hydraulic pumping machinery at the Combination shaft is working splendidly, and the openings on the 3000 level are perfectly dry. The face of west cross-cut No. 1, south of the main incline winze on the 3000 level of the Norcross, is said to b still in quartz carrying ore. They are now cleaning out the north drift along the vein from west cross-cut No. 2. The air-gallery on the 2400 level is making good headway in the direction of the main northwest drift.

WOODVILLE.—The shipments of ore to the Eureka mill will soon begin. When they once get fairly started, they expect to average about 50 tons of ore a day. This ore will be taken out between the 400 level and the surface.

NEW JERSEY.

WARREN COUNTY.

Work has been resumed at the mines at Turkey Hill, near Asbury. The mines have been idle a long time, and as many of the old employés had left the place, the company had to advertise for 100 men. The owners of the mines have agreed to take less for the ore until prices become better. The ore is sold to the Bethlehem Iron Company at $3.50 a ton. The price before the suspension was $8 a ton.

NEW MEXICO.

Mr. George W. Julian has been appointed Surveyor-General of New Mexico.

DONA AÑA COUNTY.

ORGAN SMELTING COMPANY.—Special official advices state that the company is building new works at Las Cruces, removing the old machinery from Organ, and adding to the new works a large quantity of new machinery, including a Fraser & Chalmers complete water-jacket and Galena smelting plant of 60 tons capacity per day. Prospects for an abundant supply of lead and silver ores from the Organ Mountains and Old Mexico, are excellent. Mr. W. R. Roney is the superintendent.

GRANT COUNTY.

FLAGLER.—These reduction-works at Silver City have about completed their experimenting. It will be a month or so before they are ready to buy ores, as they have enough tailings on hand to last them a year, on which they can work in the mean time until the crushing machinery and roaster are ready to begin operations.

GREAT AMERICAN.—The mine has closed down. There are large quantities of low-grade ore on the dumps, and lots of good ore still in the mine, but, owing to the great cost of transportation, it does not pay to ship. The mine will not reopen until suitable works for treating the ore are erected on the ground. Negotiations for the erection of such works are pending.

PENNSYLVANIA.

LEHIGH COUNTY.

Nearly all the iron mines on the flats in Lower Macungie have resumed operations, but the employés get only from 70 to 75 cents per day of eleven hours.

NORTHAMPTON COUNTY.

At the weekly meeting of the National Slate Exchange, held at Easton, May 26th, 3462 squares of blue block slate were sold at an average price of $3.75 per square. Ten thousand advertising school-slates sold at from 2 to 4 cents each. The slate market is firm.

SOUTH CAROLINA.

The boiler in Linstedt's phosphate-works at Charleston exploded June 2d, killing two negroes, dangerously wounding a third, and wrecking the works.

UTAH.

SALT LAKE COUNTY.

FLAGSTAFF, LIMITED.—The Flagstaff District Silver Mining Company, Limited, is about reorganizing under the title of the Flagstaff Mines, Limited, with a nominal capital of £175,000, in £1 shares. Shareholders in the old company are to be credited with 17s. 6d. paid on their shares. Unless £120,000 is applied for, no allotment will be made. Professor Vincent is chairman.

SUMMIT COUNTY.

ONTARIO.—Shipments have been resumed after the annual clean-up and overhauling of the mill. The first of the new run amounted to thirty-eight bars, valued at $23,264.54.

APEX.—Ore will be shipped soon that will run 50 or 60 ounces and 35 or 40 per cent lead. All the ore has been taken out from the upper tunnel, which runs in a distance of 450 feet. Work now is pushed in the lower tunnel, which has been run 1080 feet into the hill, but which will have to go 300 feet farther, to

strike the hoped-for vein. The stock has dropped in price, and advices state that it is doubtful if 25 cents could now be obtained.

TOOELE COUNTY.

CALUMET.—Auerbach Brothers have sold their interest in this group of mines at Stockton to C. C. Karrick, of Salt Lake City, for $28,000. During the past two years, the property has been worked, and is said to be looking well.

VIRGINIA.

It is stated that the company owning the tin mines at Rockbridge is making energetic efforts to develop its property. A shaft has been sunk at one point with promising results. At another point, a very large hillside of rock has been blasted off in the search for the ore-body.

WISCONSIN.

NEW RICHMOND ORE COMPANY.—This company has been organized to deal in mineral oil and mineral oil lands. The capital stock is $4000. The incorporators are W. Pierce, A. H. Pierce, J. E. Sawyer, Charles Danahue, O. L. Greaton, and E. M. Simonton.

BULLION PRODUCTION FOR 1885—SPECIAL OFFICIAL REPORTS.

MINES.	States.	Month of April.	Year from Jan. 1st, 1885.
		$	$
Adams, S. L.	Colo.	42,191	146,103
Alice, G. S.	Mont.	———	156,456
Belmont	Nev.	———	10,003
Boston & Montana, G.	Mont.	37,921	139,624
Christy, S	Utah	———	35,941
Chrysolite, S	Colo.	4,326	17,465
Colorado Central, S.	Colo.	18,498	72,833
Consolidated Bobtail, G.	Colo.	8,404	24,316
Deadwood-Terra, G	Dak.	———	105,740
Derbec Blue Gravel, G. S.	Cal.	6,640	50,057
Essex, G. S.	N. S.	773	6,474
Eureka Consolidated, S. L.	Nev.	———	10,266
Father de Smet, G.	Dak.	31,769	126,762
Freeland, G. S. C.	Colo.	30,324	126,613
Grand Prize, S.	Nev.	———	25,150
Granite Mountain, S.	Mont.	106,446	327,214
Hall-Anderson, G.	N. S.	1,173	3,695
Head Center & Tranquillity	Ariz.	———	85,396
Hecla Consolidated, G. S. L. C.	Mont.	———	*181,888
Helena, G. S. L. C.	Mont.	*99,439	351,560
Homestake, G.	Dak.	———	291,669
Hope, S	Mont.	21,968	51,143
Iron Silver, S. L.	Colo.	———	192,245
Kentuck, S.	Nev.	589	1,378
Lexington, G. S.	Mont.	80,257	261,828
Moulton, S. G.	Mont.	65,490	250,536
Mount Diablo, S	Nev.	56,281	149,312
Navajo, S	Nev.	———	82,894
New Hoover Hill, G. S.	N. C.	6,135	23,141
New Pittsburg, S.	Colo.	———	9,594
North Belle Isle, S.	Nev.	———	2,118
Ontario, S	Utah	———	592,054
Oxford, G	N. S.	918	1,905
Plymouth Consolidated, G	Cal.	82,192	359,024
Rooks, G.	Vt.	7,134	28,383
South Yuba, G	Cal.	———	1,168
Standard Consolidated, G.	Cal.	13,801	62,116
Stormont, S.	Utah.	13,745	53,379
Tombstone, G. S. L.	Ariz.	*55,553	235,206
Total		———	4,622,649

G., gold; S., silver; L., lead; C., copper. Silver valued by the different companies from $1@$1.29·29 per ounce; gold, $20.67. *Not including value of lead and copper. †Royalty. ‡Net. ——— No shipments during month mentioned.

MARKETS.

Silver.

NEW YORK, Friday Evening, June 5.

DATE.	London. Fence.	N. Y. Cents	DATE	London. Pence.	N. Y. Cts.
May 30	49⅛	107¼	June 3	49 1-16	107
June 1	49 1-16	107⅛	4	49 1-16	107
2	49	106⅞	5	49⅛	107

There is nothing worthy of note in the silver market. The assurance of peace has gone apparently as far as it can in reducing the price, and a slight reaction took place to-day in London, owing to an improvement in Indian exchange. Silver has not thus far foreshadowed any change in the German policy or that of the Latin Union. Our own government's action will be far more important.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, made no change in the bank's minimum rate of discount, and it remains at 2 per cent. During the week, the bank gained £230,690 bullion; but the proportion of its reserve to its liabilities was reduced from 51⅝ to 50½, against 46¾ per cent at this date last year.

U. S. Mints.—The total coinage of the mints during May, including 2,401,837 standard dollars, amounted in value to $4,055,437.

The resignation of Colonel Snowden, Superintendent of the Philadelphia Mint, has been accepted by the President, to take effect on the 30th of June.

Copper.—The copper market is very dull, and as the large consumers are mostly supplied, there is not likely to be much movement in the market for some time; the statistical position is, however, strong, as we have already shown in these reports, and of all our metals this is in the best position for an advance. Our exports have been heavier than was expected, as is shown in the following table:

EXPORTS OF COPPER FROM ALL UNITED STATES.

First four months of 1885.

MONTHS.	ORES. Tons.	ORES. Value.	INGOTS, BARS, ETC. Lbs.	INGOTS, BARS, ETC. Value.
January	3,046	$432,036	4,351,594	$505,884
February	1,472	161,430	2,408,128	269,928
March	2,268	238,180	3,999,632	444,510
April	4,723	465,496	2,515,419	275,991
Totals	11,509	$1,297,142	13,274,770	$1,496,323

MONTHS.	SHEETS. Lbs.	SHEETS. Value.	ALL OTHER MFRS. Value.	Total Value.
January	2,252	$434	$6,196	$944,550
February	2,709	432	11,358	443,148
March	9,821	1,436	9,603	693,729
April	2,050	369	12,883	754,739
Totals	16,832	$2,671	$40,040	$2,836,166

In this table, most of what is classed as ore was matte. Counting all under this heading as averaging 55 per cent of copper, it would appear that our exports of fine copper during the first four months of the present year amounted to about 26 million pounds. Should this rate of export continue throughout the year, our home market would certainly be left short, unless the production increased above that of last year, a contingency of which there is little probability.

We continue to quote Lake 11½c.; Orford, 11c.; Baltimore, 10¾c.; Parrot Electrolytic, nominal, 11@11·25c., with the market dull but firm. Furnace material is again bid for by the English refiners. Prices in London are quoted by Henry Merton & Co. at 8s.@8s. 1½d. per unit for ore. Chili Bars during the past week have fluctuated but little. June 1st and 2d, £45 10s.; 3d, £45; 4th, £45 2s. 6d.; and to-day, £45 7s. 6d. Best Selected now stands at £49.

Tin.—The price of this metal is regulated altogether by speculation, and from £88 12s., at which we quoted it a week ago, it advanced during the week to £92, but has again declined to £90 2s. 6d. to-day, with £89 7s. 6d. for three months, according to cables received by the Metal Exchange, and even lower for two months, according to private cables.

Here, we quote 19·40@19·65c. for spot, and the market very dull.

Lead.—This metal is quite without life, and sales here during the week amounted to but a few hundred tons, about one half of which was Common at 3·60c., and the rest Corroding at 3·65c.

Spelter and Zinc.—The market is extremely dull, and the price remains unchanged at 4·15@4·20c. for Domestic; Glendale, 4·40c.; Bertha, 7½@7¾c.; and 4¾c. for Silesian. London cables to-day quote Silesian £13 12s. 6d.

Sheet-Zinc.—We quote 4·90@5c. for Domestic.

Antimony.—This is very quiet, and we continue to quote 9½c. for Hallet's.

Nickel.—Nickel may be quoted at 70@75c. per pound.

Aluminium.—$1 per ounce.

Bismuth.—Bismuth has advanced to $2@$2.20 per pound.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, June 5.

The strike in the West has not had any effect on prices, the impression being general that, as soon as the manufacturers are ready to run, a working basis will be agreed upon.

It is estimated that the manufactured iron that would be produced by the mills on strike would amount to 2,400 tons a day, were they at work.

American Pig.—There is no change to record in price. Good No. 1 X Lehigh is firmly held at $18 at tide-water; No. 2 X, $17; and Gray Forge, $16, though inferior brands can be purchased at 50c.@$1 off these prices.

Scotch Pig.—There is nothing but a retail trade doing in this iron, and prices remain, as for some time past, at $21 for Coltness, down to $18 for Eglinton, with the usual variations between these extremes for other brands.

Cables to the Metal Exchange to-day quote Coltness 50s.; Eglinton, 41s. 9d., showing a small though steady decline.

Steel Rails.—Sales have been rather heavier than usual this week. We hear of some 8000 tons sold at $28 at tide-water, the greater part of these for a Georgia road. This price is equivalent to $27 at the Eastern mills, which is firmly held.

The Lackawanna Steel Mill has had an accident to its engine, which will keep it idle for two weeks. This company's rail mill was burned a short time ago, and this second accident has stopped all its work.

Philadelphia. June 5.

[From our Special Correspondent.]

The brokers in the iron trade are not disposed to prophesy one way or the other. They are waiting for an improved market, and say they are certain it will come. In crude iron, the stronger companies have discontinued the crowding of stocks on the market at buyers' terms. There is only one company here that has been pursuing that policy of late, and the representatives of it say they will get their price or let iron pile up. In foundry irons, only sales run in car-load and occasionally larger lots. The business is almost altogether of a hand-to-mouth character. A one hundred-ton lot is a very exceptional sale. The special irons have had a good run all along, and there seems to be nothing offering from that quarter. There would naturally be a good deal more iron offered on this market if the Western lock-out should be long. The quotations for the better brands are $18 and $17 while most of the business that is heard of on the street is at $17.50 and $16.50. A few brokers and makers had more inquiry this week for forge irons, but the buyers expect a drop, and have not purchased. Fair forge irons are easily had at $15.

Muck-Bars.—From 600 to 800 tons have been contracted for in 25 to 100-ton lots since last Monday, and it is understood that negotiations are in hand to-day for one or two thousand tons more. Quotations range from $26.50@$27.50.

Blooms.—The owners of the bloomaries are disheartened, and say that some of their capacity must be thrown off.

Foreign Material.—Spiegeleisen is dull at $24.50@$25.50.

Merchant Iron.—Quite a number of small contracts were placed this week at the mills here, and some of the country mills have been taking a few more orders, but there is nothing to indicate that the market is improving. Some of the best merchant iron has sold at $1.75. Some of the country mills have been shading common iron very low.

Sheet-Iron.—There is not much doing, but all the mills have a few orders that keep them running in a half-and-half sort of way. Light sheets are in better request than any other kind.

Wrought-Iron Pipe.—There is no change in the situation, and card rates hold.

Plate and Tank-Iron.—Small sales are made at 1·90@2c.; Shell, 2·40@2·50c.

Bridge Iron.—A few small orders for bridge iron have been secured, but they represent only the average business done.

Merchant Steel.—The mills on merchant steel are all working along quietly without any activity that can be called an improvement. The hardware and implement-making establishments are pretty well supplied with material to fill the orders, and make the stock they desire to carry.

Steel Rails.—A large order is likely to be placed on the market, and rumor says prices are under $26. The details are not available. Most of the business is in from one to 500-ton lots, and there is a good deal to advantage to be had. The rail market is realizing good prices for small lots, and with the demand it is enjoying for steel slabs, it thinks it will be able to pull through without any cause for complaint. The Pennsylvania Steel Company is quite crowded with business, and one or two others have increased their orders in spite of the general dullness.

Old Rails.—If brokers could meet buyers' views

they could do a great deal of business. Pot lots are held at $18. There are several buyers in the market to-day, but not much likelihood of business. All kinds of scrap are affected, and there is very little selling.

Pittsburg, Pa. June 5.

A telegram to-day to the Metal Exchange gives sales of pig-iron in Pittsburg :

1000 tons	Gray Forge Lake ore	$14.55	cash
250 "	Foundry No. 1, all ore	17.75	4 mos.
50 "	" " "	19.50	"
50 "	" " "	18.00	"
200 "	Gray Forge Native ore	14.50	cash
50 "	Foundry No. 2 " "	16.00	
50 "	" " " "	15.50	4 mos.
20 "	Cold Blast " "	27.00	"
20 "	Ore-Foundry	23.50	"

COAL TRADE REVIEW.

NEW YORK, Friday Evening, June 5.

Anthracite.

The coal market is in a decline, and the stimulants and hypodermic injections it has been treated with are losing their effect, and there is little cheering news to report. Prices, which were weak when we last wrote, are weaker now, and though the Delaware & Hudson indignantly denies having sold a ton of chestnut coal at $3.35, as reported in our review a week ago, an abundance of good chestnut can be purchased now at $3.25, and, we are told, at even $3.15 alongside, equal to $3 f. o. b.

We think the company somewhat unreasonable ; for the general opinion in the trade is that, if the company secured $3.35 for a round lot of chestnut, it made a good sale, and was to be congratulated. The company also informs us that a week ago it had not "a large number (some 150) boats of stove coal at Rondout," as our report intimated, but declines to give us any specific figure. We gladly make these corrections, and congratulate the company upon its exceptional good fortune in being able to dispose of all its coal at prices so near the "top" of the market, or perhaps, lest we again err, we should say at "net circular" rates.

We hear of sales of hard white ash broken as low as $3.13 f. o. b., circular rates being $3.50, and of good stove in round lots at $3.60, and chestnut as above at about $3 f. o. b. But these are exceptional prices, due to special causes.

We quote average selling prices of hard and free-burning coals as follows, f. o. b. New York shipping ports :

	Selling prices.	Circular rates.
Broken and Egg	$3.15@$3.35	$3.40@$3.65
Stove	3.65@ 3.85	4.00@ 5.00
Chestnut	3.10@ 3.40	3.65@ 4.00
Pea, soft	2.00@ 2.50	2.65@ 2.45
" hard	1.85@ 2.25	2.65@ 2.45

A meeting of the wholesale coal dealers was held in the Washington Building, in this city, June 2d ; the object being to either form an independent Exchange or to join with the Maritime. The subject was fully discussed, and a committee appointed to consider the matter, and to report at a meeting called for Wednesday, 10th inst.

A Coal Exchange where coal questions could be discussed, and where coal would be sold, as stocks, wheat, petrolum, cotton, iron, copper, lead, etc., are, would no doubt be an advantage to the trade and to the public. It is not at all certain that it would tend to higher prices, but it would prevent the wide differences in price that now exist, and would save the companies the trouble of printing absurd circulars.

The Philadelphia *Record*, from a desire to demonstrate the accuracy of its quotations or from pure philanthropy—a sentiment for which newspapers are famous—offered and sold large amounts of coal last autumn and winter at $5.75 a ton delivered, when circular rates were $6.50. The *Record* subsequently reduced the price to $5.50, and now it announces a further reduction of 50 cents, to $5. A Schuylkill firm supplies the coal, having taken the contract from G. B. Newton & Co. (Lehigh Valley).

The average price received by the Delaware, Lackawanna & Western for its tide-water coal in May is estimated to have been $3.39½, though some of the shippers over that road argue it was less than this. The company has been sending a great part of its coal West, and may have been able to maintain a better price here on that account.

Our Buffalo letters give a picture of the happy condition of the coal trade there. A new circular is issued next week. We shall report whether it is "cut" 10 or 15 cents.

Mr. James B. McCamant, the winning assistant sales agent of the Reading Company, has been absent from the city for some time on "business." It is rumored that he found a "tender-foot" "down East," who, ignoring the general decline in the market, took all he had to offer on his own terms, which, naturally, are "private." The interest the company had in the contract is not stated, but it is certain that Mr. McCamant got "the better half" in the transaction, and no part of what was disposed of belongs to "the fighting million." Fortunate McCamant ! happy tender-foot !

The Reading has issued the following price-list, No. 3. Our remarks above indicate how far these circular prices are hypothetical. They are generally taken as an intimation of what the companies would like to get rather than what they are willing to accept ; so that no intending purchaser need be frightened away from any company by its "circular prices."

PHILADELPHIA, June 1, 1885.

On and after this date, and until further notice, the following will be the prices for this company's coal, delivered on board vessels at Port Richmond, Philadelphia, Pa. (for shipment beyond the Capes of the Delaware), and Elizabethport, N. J., subject to our printed conditions of sale :

PORT RICHMOND.

	Broken.	Egg.	Stove.	Chestnut.	Pea.
	$	$	$	$	$
Hard white-ash coal	3.25	3.25	3.85	3 40	2. 0
Free-burning white-ash coal	3.15	3.15	3.85	3.40	2.20
North Franklin white ash coal	.....	3.85	3.85	3.40	2.20
Schuylkill red-ash coal	.....	3.50	4.40	3.50	2.20
Shamokin white-ash coal	.....	3.85	4.25	3.40	2.20
Shamokin red-ash coal	.....	3.90	4.65	3.50	2.20
Lorberry coal	.....	3 90	4.65	3.50	2.20
Lykens Valley coal	4.90	5.40	5.40	5.15	.....

Hard white-ash—Lump, $4; Steamboat, $4.

ELIZABETHPORT, N. J.

	Broken.	Egg.	Stove.	Chestnut.	Pea.
	$	$	$	$	$
Hard white-ash coal	3.50	3 50	4.10	3.65	2.55
Free-burning white-ash coal	3.40	3.40	4.10	3.65	2.45
North Franklin white-ash coal	.....	4.10	4.10	3 65	2.45
Schuylkill red-ash coal	.....	3.85	4.75	3.85	2.45
Shamokin white-ash coal	.....	4.20	4.60	3.75	2.45
Shamokin red-ash coal	.....	4.25	5.00	3.85	2.45
Lorberry coal	.....	4.25	5.00	3.85	2.45
Lykens Valley coal	5.25	5.75	5.75	5.50	.....

Hard white-ash—Lump, $4.25 ; Steamboat, $4.25.

THOMAS M. RICHARDS, General Coal Agent.

Bituminous.

There is very little doing in soft coals. The Pacific Mail Steamship Company is supposed to have given its contract to Vanderbilt coal at a price much below $3. The prices are $2.75@$3 f. o. b. in this harbor for round lots. Occasionally a little more is obtained on small orders. The Pennsylvania Railroad is still losing its trade and is reported as "getting mad." How "mad" it will get and what it will do are important questions at present, but a "lively time" is expected when the war does break out.

Philadelphia. June 4.

[From our Special Correspondent.]

Trade here for the local market is worse than dull. The struggle among retail dealers to do something at this unusually dull time has brought on a crisis and all sorts of prices, and buyers are holding back to see what will be the result. This delay will only make it more difficult to fill orders satisfactorily when orders come, and is likely to make coal dearer in the fall than it would be if taken as it is now produced. The same may be said of freights, particularly for small vessels. Dealers limit the rates below the point of earning any thing. Quite a fleet of small vessels is tied up here, and will not start to carry coal until rates are much better. Even large vessels are scarce and rates well maintained. Special coals and broken continue scarce, and stove is shipped as fast as it reaches tide, and no accumulation. Chestnut and egg are dull and piling up.

[Special Correspondeuce.]

Reductions have been made in the price of coal for city delivery by the Pennsylvania and Reading companies. The Pennsylvania first reduced five cents per ton, and on Wednesday cut 15 cents more. It is expected the Reading will meet this drop by a further reduction. The Reading means to meet competition wherever it is presented, and the local consumers are gratified at the prospects of cheaper coal. There are some probabilities of an improving demand for anthracite coal and coke in Eastern Pennsylvania markets, but the advices to-day from New England markets are not altogether favorable. The producers say the policy of withholding orders will not avail any thing, and that better prices will be realized in the course of a few weeks. Stocks are light and freights are advancing. Both regions are working. The only hope for an improved coal trade at present is in such a combination of producers and shippers as will assure consumers that they are not to profit by any further competition. This is, of course, possible, but shippers say there is much opposition shown to any further combination at present. The consumers expect cheaper coal both East and West. The producers think buyers will be driven from their standing-off policy, and that prices will be firmer as soon as the legitimate requirements are filled. No heavy contracts for bituminous coal have been placed, but there is a good deal of business done in a small way.

Buffalo. June 4.

[From our Special Correspondent.]

The local anthracite coal trade was found to be so demoralized that on Monday last about 100 dealers and retail jobbers met together to consider the situation and recommend some plan of action. It is claimed that the coal trouble originated with an old company and a later one (the latter trying to obtain the bulk of the trade of said company) clashing together and cutting the schedule. Colonel Horton, agent of the Lehigh Valley, was made Chairman, and Mr. J. E. Williams, Secretary. A resolution was adopted that no coal should be sold at any figure until the report of the committee was known. Yesterday afternoon, the adjourned meeting was held, and an alliance was formed under the name of the Buffalo Coal Exchange, with the following officers : President, E. L. Hedstrom ; Vice-President, Adam Schell ; Treasurer, T. Guilford Smith ; Board of Directors, Thomas Loomis, James Ash, Henry G. Smith, James Hanrahan, and D. J. Stickney.

The following rates were fixed, to take effect immediately : For manufacturers, municipal, and charitable institutions, churches, and their pastors : Grate, $4.25 ; Egg, $4.25 ; Stove, $4.60 ; Chestnut, $4.60 per 2000 pounds. The retail prices delivered will be : Grate, $4.75 ; Egg, $4.75 ; No. 4, $5.25 ; Stove, $5 ; Chestnut, $5 ; Pea, $3.75 per 2000 pounds. During the week, chestnut was sold even below $4.35.

If this agreement holds good, all may yet be well for the dealers. If it does not, why, matters can not be worse than they are now. The public will not grumble at low prices.

It is understood that the bituminous coal business is not working smoothly. The trouble comes from parties whose mines are not in the association, but an effort is making to harmonize the discordant elements.

The members of the Chicago Coal Exchange were unable to arrange satisfactorily the basis for summer prices at their meeting last week, and they have appointed a committee to meet Eastern dealers in our city on June 11th. The Western men desire a reduction in prices, while Eastern men wish the present schedule maintained. There is "music in the air."

The Buffalo Water-Works Commissioners on Monday opened the bids for 10,000 tons of anthracite grate, to be delivered at the works here. The following were the prices : G. Elias & Brother, $3.80 ; J. H. Horton, $3.80 ; F. H. Goodyear, $3.80 ; E. L. Hedstrom, $3.75 ; J. J. McWilliams, $3.74 ; T. Guilford Smith, $3.73 ; E. S. Hubbell, $3.70 ; Lee, Smith & Moore, $3.68 ; and H. C. Springer, $3.50. The award has not been announced yet.

The coal shipments by lake from Buffalo, May 28th to June 3d, both days inclusive, were 42,530 tons, namely, 13,030 to Chicago, 3650 to Milwaukee, 10,400 to Duluth, 2800 to Green Bay, 200 to Bay City, 750 to Sandusky, 4300 to Racine, 3650 to Toledo, 3050 to Superior City, and 700 to Marquette.

The market for freight closed last week 10 cents higher to Chicago and Milwaukee, as many vessels were withdrawn in consequence of the low rates offered. On Monday, only two vessels were chartered. On Tuesday, another advance of 10 cents took place to the ports named. To-day, freights strong, with difficulty in obtaining vessels at the enhanced rates, The freight figures for the past week were as follows : 50@60@70c.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L	Colo.	$1,500,000	150,000	$10	*				$180,000	May	1885	.15
2	Alice, s. C	Mont	10 000,000	400,000	25	*				625,000	Jun.	1885	.06
3	Amie Con., s. L	Colo.	5,000,000	500,000	10	*				320,000	Oct.	1883	.05
4	Atlantic, C	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	280,000	Feb.	1885	.50
5	Argent, s	Nev.	10,000,000	100,000	100	285,000	Apl.	1884	.10	40,000	Feb.	1880	.20
6	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*				60,000	Nov	1880	.10
7	Bassick, G. S	Colo.	10,000,000	100,000	100	*				400,000	Mar.	1884	$1.00
8	Belle Isle, s	Nev.	10,000,000	100,000	100	120,000	Mar.	1884	.20	300,000	Dec.	1879	.25
9	Belcher, G. S	Nev.	10,400,000	104,000	100	2,186,135	Apl	1883	.25	15,397,000	Apl.	1876	1.00
10	Big B'nd Hydraulic, G	Dak.	1,000,000	200,000	5	*				144,000	May	1885	.03
11	Black Bear, G	Cal.	3,000,000	30,000	100	22,500	Dec.	1884	.25	895,000	May	1883	.20
12	Bodie Con., G	Cal.	10,000,000	100,000	100	275,000	Dec.	1883	.50	1,695,000	Apl.	1885	.50
13	Bonanza Developm't	C&M	3,000,000	300,000	10					135,000	Oct.	1882	.15
14	Bonanza King, Cons.	Cal.	1,000,000	100,000	10	*				185,000	Feb.	1885	.10
15	Boston & Mont, G	Mont	2,000,000	200,000	10	*				310,000	Jan.	1883	.05
16	Breece, S	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
17	Bulwer, G	Cal	1,000,000	100,000	100	20,000	Jan.	1885	$.20	175,000	Jan.	1884	.10
18	Calumet & Hecla, C	Mich	2,500,000	100,000	25					27,350,000	Jun.	1885	7.00
19	Carbonate Hill, s. L	Colo.	2,000,000	200,000	10	*				80,000	Apl.	1884	.05
20	Caribou Con., S	Colo.	1,000,000	100,000	10	*				50,000	Mch	1880	.10
21	Castle Creek, G	Idah.	100 000	100,000	1					51,000	Oct.	1883	.03
22	Catalpa, s. L	Colo.	3,000,000	300,000	10	*				270,000	May.	1884	.10
23	Central, C	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,710,000	Feb.	1885	5.00
24	Christy, S	Utah	6,000,000	60,000	100	24,000	Dec.	1883	.20	90,000	Jan.	1883	.10
25	Chrysolite, S. L	Colo.	10,000,000	200,000	50	*				1,620,000	Dec.	1884	.25
26	Colorado Central, s. L	Colo.	3,000,000	300,000	10	*				30,000	Apr	1885	.05
27	Con. Bobtail, G	Colo.	1,136,830	227,366	5	*				147,762	Mch	1880	.10
28	Con. Gold Mining, G.	Ga.	500,000	100,000	5	*				108,000	Nov	1883	.02
29	Contention, S	Ariz.	12,500,000	250,000	50					2,587,000	Dec.	1884	.25
30	Copper Queen, C	Ariz.	2,500 000	250,000	10	*				1,350,000	Dec.	1884	.50
31	Crescent, s. L. G	Utah	15,000,000	300,000	25	‡				150,000	Oct.	1883	.05
32	Crown Point, G. S	Nev.	10,000,000	100,000	100	2,675,000	Feb.	1862	.25	11,588,000	Jan.	1875	2.00
33	Deadwood-Terra, G.	Dak.	5,000,000	200,000	25	*				§900,000	Jan.	1883	.10
34	Derbec B. Grav., G. S.	Cal.	10,000,000	10 000	100	90,000	Dec.	1881	.10	60,000	Oct.	1884	.10
35	Dunkin, s. L	Colo.	5,000,000	200,000	25	*				220,000	Sept	1884	.05
36	Eureka Con., G. S. L	Nev.	5,000,000	50,000	100	350,000	Jan.	1884	1.00	4,817,500	July	1882	.25
37	Evening Star, s. L	Colo.	500,000	50,000	10	*				1,400,000	Nov	1883	.50
38	Excelsior, G	Cal.	10,000,000	100,000	100	460,000	Sept	1881	.50	875,000	Oct.	1880	.25
39	Father de Smet, G	Dak.	10,000,000	100 000	100	200,000	Nov	1878	1.00	950,000	May	1885	.20
40	Franklin, C	Mich	1,000,000	40,000	25	220,000	Jun	1871		440,000	Jan.	1884	2.00
41	Freeland, G	Colo.	5,000,000	200,000	25	*				70,000	May	1885	.10
42	Grand Enterprise, G	Cal.	5,000,000	100,000	50			Mch	1883	110,000	July	1882	.10
43	Gem, S	Colo.	125,000	125,000	1					23,750	May	1884	.02
44	Glen, S	Colo.	100,000	100,000	1					7 000	May	1883	.01
45	Gould & Curry, G. S.	Nev.	10,800,000	108,000	100	3,813,600	Oct.	1884	.50	3,826,000	Oct.	1879	10.00
46	Grand Central, S	Ariz.	1,000,000	100,000	10					625,000	Dec.	1882	.25
47	Grand Prize, S	Nev.	10,000,000	100,000	100	530,000	Nov	1884	.30	495,000	Mar.	1884	.25
48	Granite, S	Colo.	125,000	125,000	1					6,250	May	1883	.01
49	Granite Mountain, S.	Mont	10,000,000	400,000	25					140,000	May	1885	.10
50	Green Mountain, G	Cal.	1,250,000	125,000	10					212,000	Nov.	1881	.07½
51	Idle & Norcross, G. S	Nev.	11,200,000	112,000	100	4,594,000	May	1885	.50	1,598,000	Apl.	1871	5.00
52	Hall-Anderson, G	N. S.	150,000	150,000	1					7,000	Jan.	1882	.05
53	Hecla Con., S	Mont	1,500,000	30,000	50					732,500	Apl.	1885	.50
54	Helena Mg & Red, G. S. L	Mont	3,000,000	600,000	5	*				72,000	Jan.	1885	.06
55	Henriett, L	Colo.		270,000						27,000	Feb.	1883	.10
56	Holyoke, G	Idah.	200,000	200,000	1					52,000	Nov	1883	.02
57	Homestake, G	Dak.	12,500,000	125,000	100	200,000	July	1878	1.00	2,736,250	May	1885	.30
58	Hops, S	Mont	400,000	8,000	50	*				158,252	Oct.	1884	1.50
59	Horn-Silver, S. L	Utah	10,000,000	400,000	25	*				4,090,000	Nov.	1884	.50
60	Idaho, G	Cal.	310,000	3,100	100					3,020,800	Apl.	1885	7.50
61	Independence, S	Nev.	10,000,000	100,000	100	300,000	Jan.	1885	.15	225,000	Sept	1879	.25
62	Indian Queen, S	Nev.	250,000	125,000	2					388,750	July	1883	03
63	Inyo, G	Cal.	500,000	100,000	5	*				45,000	Apl.	1882	.05
64	Iron-Silver, S. L	Colo.	10,000,000	500,000	20	*				1,300,000	Jan.	1884	20
65	Jackson, G. S	Nev.	5,000,000	50,000	100	10,000	Nov.	1880	.20	15,000	Dec.	1884	.10
66	Jocuistita, S	Mex.	10,000,000	100,000	100					1,200,000	Feb.	1885	.50
67	Kentuck	Nev.	3,000,000	30,000	100	342,000	Nov	1881	.30	1,288,000	July	1884	.10
68	La Plata, S. L	Colo.	2,000,000	200,000	10	*				610,000	Sept	1884	.30
69	Leadville, S. L	Colo.	4,000,000	400,000	10	*				350,000	Sept	1884	.05
70	Lexington, G. S	Mont	4,000,000	40,000	100	*				565,000	Jan.	1885	2.00
71	Little Chief, S. L	Colo.	10,000,000	200,000	50	*				780,000	May	1885	.10
72	Little Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				1,050,000	May	1880	.50
73	Marguerite, G	Cal.	500,000	25,000	20					18 750	Oct.	1882	.25
74	Martin Waite, S	Nev.	10,000,000	100,000	100	1,100,000	Jan	1885	.25	90,000	July	1879	.30
75	Minas Nuevas, S	Mex.	300,000	300,000	3	*				20,000	July	1883	.10
76	Morning Star, S. L	Colo.	1,000,000	100,000	10					525,000	July	1884	.25
77	Moulton, S. C	Mont	2,000,000	400,000	5	*				140,000	Apl.	1885	.07½
78	Mount Pleasant, G	Cal.	150,000	150,000	1	*				105,000	Mar.	1884	.10
79	Mt. Diablo, S	Nev.	5,000,000	50,000	100	137,500	Jun.	1883	2.00	60,000	May	1885	.20
80	Napa, Q	Cal.	700,000	100,000	7					290,000	Jan.	1883	10
81	Navajo, G. S	Nev.	10,000,000	100,000	100	235,000	Mch	1882	.20	325,000	Feb.	1885	.25
82	N. Hoover Hill, L. G. S.	N. C.	300,000	120,000	250	*				7,500	May.	1885	.06¼
83	New York Hill, G	Cal.	5,000,000	50,000	100	55,000	Mch	1878	.20	215,000	Aug.	1882	.10
84	New York & Colo., G.	Colo.	1,250,000	50,000	25					25,000	July	1879	.10
85	Northern Belle, S	Nev.	5,000,000	50,000	100	425,000	Jan.	1884	8.30	2,400,000	Apl.	1883	50
86	North Belle Isle, S	Nev.	10,000,000	100,000	100	105,000	Jan.	1884	.10	30,000	Aug.	1881	.15
87	Ontario, S. L	Utah	15,000,000	150,000	100					6,425,000	May	1885	.50
88	Ophir, G. S	Nev.	10,000,000	100,000	100	3,902,800	Feb.	1885	50	1,595,000	July	1882	1.00
89	Original, S. C	Mont	1,500,000	60,000	25	*				114,000	Oct.	1884	.05
90	Osceola, C	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	25
91	Oxford, G	N. S.	125,000	125,000	1	*				33,000	Apl.	1884	.05
92	Paradise Valley, G. S	Nev.	10,000,000	100,000	100	47,000	Mar.	1882	.15	50,000	Oct.	1884	.10
93	Pleasant Valley, G. S.	Cal.	10,000,000	100,000	100	40,000	Mar.	1884	.10	30,000	Dec.	1882	.05
94	Plymouth Con., G	Cal.	5,000,000	100,000	50	*				1,250 000	Jun.	1885	.50
95	Prussian, S. L	Colo	1,500,000	150,000	10					132,000	Jan.	1883	.10
96	Quick silver, pref., Q	Cal.	4,300,000	43,000	100					666,900	Feb.	1884	30
97	" com., Q	Cal.	5,700,000	57,000	100					151,000	July	1882	.40
98	Quincy, C	Mich	1,000,000	40,000	25	200,000	Dec.	1862		4,190,000	Feb.	1885	2.50
99	Richmond, S. L	Nev.	1,350,000	54,000	25	*				4,110,587	Aug.	1884	1.25
100	Rising Sun, S	Dak.	750,000	150,000	5	*				52,000	May	1881	.07½
101	Robinson Bar, G	Idah.	100,000	100,000	1	*				9,000	Dec.	1882	.03
102	Robinson Con., S. L	Colo.	10,000,000	200,000	50					575,000	Nov	1881	.50
103	Robert E. Lee, S. L	Colo.	5,000,000	500,000	10					100,000	Dec.	1882	.10
104	Rooks, G	Vt.	500,000	50,000	10	*				61,000	Apr	1885	.30
105	San Francisco, C	Cal.	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	1885	.05
106	Savage, S	Nev.	11,250,000	112,000	100	5,932,000	Feb.	1885	.50	4,480,000	July	1859	3.00
107	Security L Mg, Mfg.	Colo.	1,000,000	100,000	10	*				50,000	July	1884	
108	Shoshone, G	Idah.	150,000	150,000	1					7,500	Apl.	1883	.01
109	Sierra Buttes, G	Cal.	225,000	22,500	10					1,450,933	Apl.	1885	.12½
110	Sierra Bella, S	N. M.	1,000,000	200,000	5					30,000	May	1884	.15
111	Sierra Grande, S	N. M.	2,000,000	400,000	5					860,000	Sept	1884	.25
112	Sierra Nevada, G. S.	Nev.	10,000,000	100,000	100	5,847,600	Feb.	1885	.25	103,000	Jan.	1871	1.00
113	Silver Cord, G. S. L	Colo.	4,500,000	450,000	10					225,000	Nov	1883	.25
114	Silver King, S	Ariz.	1,000,000	100,000	100					1,400,000	Feb.	1885	.25
115	Small Hopes, Cons., S.	Colo.	5,000,000	250,000	20	*				1,137,500	May	1885	.20
116	Smuggler, S. L	Colo.	600,000	60,000	10					66,700	Aug.	1883	.25
117	Socorro, C	N. M.	250,000	2,500	100					4,000	Mch	1882	.00¾
118	South Yuba, G	Cal.	2,000,000	40,000	50	*				150,000	Oct.	1881	.75
119	Spring Valley, G	Cal.	2 00,000	200,000	1	*				50,000	Jan.	1881	.25
120	Standard, G. S	Cal.	10 000,000	100,000	100					4,400,000	Mar.	1884	.25
121	Stormont, S	Utah	200,000	200,000	1	*				155,000	Nov.	1881	.05
122	St. Joseph, L	Mo.	1,000,000	100,000	10	*				430,000	Dec.	1885	.10
123	Syndicate, G	Cal.	10,000,000	100,000	100		July	1882	.15	70,000	May	1885	.10
124	Tip Top, S	Ariz	10,000,000	100,000	100	250,000	Sept	1883	.25	100,000	Nov.	1881	.20
125	Tombstone, G. S	Ariz	12,500,000	500,000	25					1,250,000	Apl.	1882	.10
126	True Fissure, G. S. L	Utah	1,500,000	150,000	10	*				75,000	Jun.	1883	.15
127	United Gregory, G	Colo.	300,000	300,000	1					42 000	Apl.	1883	.25
128	United Verde, C	Ariz	3,000,000	300,000	10	*				97,500	Feb.	1884	.20
129	Valencia, M	N. H.	150,000	1,500	100	*				18,750	Apl.	1885	2.50
130	Vizina, S	Ariz.	5,000,000	200,000	25	*				140,000	Apl.	1882	.10
131	Yellow Jacket, G. S.	Nev.	12,000,000	12,000	100	5,358,000	Feb.	1882	1.00	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last			
1	Albion, S. L	Nev.	$15,000,000	150,000	$100	$577,000	July	1883	.50	
2	Allouez, C	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50	
3	Alpha Con., G. S.	Nev.	3,000,000	30,000	100	415,000	Jan.	1885	.50	
4	Alta, S	Nev.	10,080,000	100,800	100	1,926,200	Apl.	1885	.25	
5	American Flag, S	Colo.	1,250,000	125,000	10	300,000	Jun.	1877	.25	
6	Barcelona, G	Nev.	5,000,000	200,000	25	*				
7	Battle Creek, G	Dak.	5,000,000	200,000	25					
8	Bear Creek	Cal.	300,000	300,000	1					
9	Beauce	N'a S								
10	Bechtel Con., G	Cal.	10,000,000	100,000	100	173,500	Jan.	1883	.10	
11	Belvidere	Cal.		60,000		92,000	Feb.	1882	.15	
12	Belmont, S	Nev.	5,000,000	50,000	100		Feb.	1885	.25	
13	Best & Belcher, G. S	Nev.	10,080,000	100,800	100	1,546,990	Nov	1881	.50	
14	Big Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				
15	Black Jack, G	Cal.	250,000	100,000	2½					
16	Bonanza Chief	Mon	1,000,000	1,000,000	1	*				
17	Bondholder	Colo.	500,000	200,000	2½					
18	Boston Con., G	Cal.	10,000,000	100,000	100	170,000	Nov	1883	.25	
19	Boulder Con	Colo.								
20	Bradshaw, S	Ariz.	2,250,000	225,000	10					
21	Buckeye	Colo.	2,000,000	400,000	5	*				
22	" preferred	Colo.								
23	Bull Domingo, S. L	Colo.	10,000,000	200,000	50	*				
24	Bullion, G. S	Nev.	10,000,000	100,000	100	4,545,000	May	1884	.25	
25	Bye and Bye	Ariz.	1,000,000	100,000	10	*				
26	Calaveras, G	Cal.	500,000	500,000	1	*				
27	Cal. W'r & M. Co., G	Cal.								
28	Caledonia, S. H., G	Dak.	10,000,000	100,000	100	490,000	Jan.	1885	.15	
29	Castle Creek, G	Idah.								
30	Catskill, S	Nev.	1,500,000	300,000	5					
31	Central Arizona, S	Ariz.	10,000,000	100,000	100					
32	Chapparal	Cal.								
33	Cherokee, G	Cal.	1,500,000	150,000	10					
34	Chollar, S	Nev.	11,200,000	112,000	100	704,000	Oct	1884	.50	
35	Climax	Colo.								
36	Con. Cal & Va., G. S.	Nev.	21,600,000	216,000	100	108,000	Jan.	1885	.20	
37	Con. Imperial, G. S.	Nev.	50,000,000	500,000	100	1,050,000	May	1885	.10	
38	Con. Pacific, G	Cal.	6,000,000	60,000	100	150,000	Mar	1883	.15	
39	Crescent, S. L	Colo.	3,000,000	300,000	10	*				
40	Crocker, S	Ariz.	10,000,000	100,000	100	25,000	Oct.	1884	.25	
41	Crowell, G	Nev.	500,000	500,000	1					
42	Dahlonega, G	Ga.	250,000	250,000	1	*				
43	Dardanelles, G	Cal.	1,000,000	100,000	10					
44	Decatur	Colo.								
45	Dunderberg, S	Colo	1,500,000	150,000	10	*				
46	Durango, G	Colo.	500,000	500,000	1	*				
47	Elko Con., S	Nev.					Mar	1884	.15	
48	Empire, S	Utah	10,000,000	100,000	100					
49	Enterprise	Colo.								
50	Eureka Tunnel, S. L	Nev.	10,000,000	100,000	100	*				
51	Exchequer	Nev	10,000,000	100,000	100	820,000	Jan.	1885	.30	
52	Globe Copper	Ariz.								
53	Gold Placer, G	Colo.	5,000,000	200,000	25	*				
54	Goodshaw, G	Cal.	10,000,000	100,000	100	204,314	Jan.	1884	.10	
55	Granville, G	N. C.	300,000	300,000	1	*				
56	Harlem M. & M. Co., G	Cal.	1,000,000	200,000	5					
57	Head Center, S	Ariz.	5,000,000	200,000	25	170,000	Jan.	1884	.10	
58	Hidalgo, S	Mex.	200,000	20,000	10					
59	Hortense, S	Colo.	2,000,000	200,000	10					
60	Julia Cons., G. S	Nev.	11,000,000	110,000	100	1,427,000	Apl.	1885	.10	
61	Lacrosse, G	Colo.	1,000,000	100,000	10	*				
62	Leviathan, S	Nev.	10,000,000	100,000	100	380,000	Sept	1882	.25	
63	Lucerne, S	Colo.	5,000,000	500,000	10	*				
64	Mammoth Bar., G	Cal.	10,000,000	100,000	100	71,000	Mar.	1884	.15	
65	Mariposa pref., G	Cal.	5,000,000	50,000	100	1,687,500	Dec.	1881		
66	" common, G	Cal.	10,000,000	100,000	100	1,975,000	Feb.	1883	.25	
67	May Belle, G	Cal.	10,000,000	100,000	100	84,000	Dec.	1881	.20	
68	Mayflower, S	Nev.	1,000,000	100,000	100	60,000	Mar	1884	.15	
69	Mexican, G. S	Nev.	10,000,000	100,800	100	2,490,160	Feb.	1885	.25	
70	Michoacan Synd	Mex.								
71	Miner Boy, G. S. L	Colo.	5,000,000	500,000	10	*				
72	Miller	Nev	5,000,000	200,000	25					
73	Mono, G	Cal.	5,000,000	50,000	100	535,000	July	1884	.50	
74	Moose Silver, S	Colo.	3,000,000	300,000	10	*				
75	Nevada Syndicate									
76	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*				
77	North Standard, G	Cal.	10,000,000	100,000	100	20,000	Nov			
78	Noonday	Cal.	600,000	60,000	10	208,000	Dec.	1881	.10	
79	Old Dominion, C	Ariz.	3,000,000	300,000	10					
80	Oriental	Nev.	2,000,000	200,000	10					
81	Oriental & Miller, S	Nev.	10,000,000	400,000	25					
82	Overman, G. S	Nev.	11,520,000	115,200	100	3,685,040	Apl.	1885	.20	
83	Peer, S	Ariz	10,000,000	100,000	100	75,000	Jan.	1885	.50	
84	Peerless, S	Ariz.	10,000,000	100,000	100	130,000	May	1885	.30	
85	Potosi	Nev.	10,200,000	112,000	100	809,600	May	1883	30	
86	Quartz Creek				100					
87	Rappahannock, G	Va		250,000						
88	Red Elephant, S	Colo.	500,000	500,000	1	*				
89	Retort M. & M. Co.	Colo.			10					
90	San Pedro, G. S. L	N.M.		400,000						
91	Silver Cliff, S	Colo.	5,000,000	200,000	25	*				
92	Sonora Con	Mex.								
93	South Bodie, G	Cal.		100,000		100,000	Mar	1882	.15	
94	South Bulwer, G	Cal.	10,000,000	100,000	100	195,000	May	1881	.25	
95	South Hite	Cal.	10,000,000	100,000	100		Jan.	1883	.05	
96	South Pacific	Cal.			5					
97	State Line, No. 1, S	Nev.	5,000,000	200,000	1					
98	" No. 2, S	Nev.	5,000,000	200,000	25					
99	" No. 3, S	Nev.	5,000,000	200,000	25					
100	" No. 4, S	Nev.	5,000,000	200,000	25					
101	" Nos. 1 and 4, S	Nev.			25					
102	" Nos. 2 and 3, S	Nev.								
103	Sullivan, G. S. L	Me.	500,000	100,000	5	125,000	Dec.	1882	.25	
104	Sutro Tunnel	Nev.	20,000,000	2,000,000	10	*				
105	Taylor-Plumas, G	Cal.	1,000,000	200,000	5	*				
106	Tioga Cons., G	Cal.	10,000,000	100,000	100	325,000	Oct.	1882	.10	
107	Tuscarora, S	Nev.	10,000,000	100,000	100	110,000	Oct.	1881	.15	
108	Unadilla, S	Colo.	50,000,000	500,000	100	*				
109	Union Con., G S	Nev.	10,000,000	100,000	100	2,010,000	Apl.	1885	.25	
110	Utah, S	Nev.	2,000,000	20,000	100	1,810,000	Dec.	1884	.50	
111	Vandewater	Nev.	20,000,000	200,000	100	*				
112	Washington	Ariz	2,000,000	200,000	10					
113	Whalen Copper	Nev.	2,500,000	100,000	25					

G. Gold. S. Silver. L. Lead. C. Copper. * Non-assessable. † This company, as the Western, up to December 10th, 1881, paid $1,400,000. ‡ Non-assessable for three years. § The Deadwood has previously paid $275,000 in eleven dividends, and the Terra $75,000. ‖ Total number of shares, 500,000; 50,000 shares have never been issued, and are still held by the company.

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.
	May 30.		June 1.		June 2.		June 3.		June 4.		June 5.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon.			1.75								.02		100
Amie Con., Co.							.16						1,500
Argenta													300
Bassick, Co.									1.50				200
Belle Isle, Ne.													
Bodie Cons., Ca.					1.40		1.50		1.60				300
Breece, Co.													
Bulwer, Ca.			.40	.36	.40	.38	.42	.40	.45	.43	.45		5,750
California, Ne.													
Cal. & Hecla, Mich.													
Castle Creek													
Chollar													
Chrysolite, Co.									.85				200
Colorado Central											1.40	1.25	900
Cons. Cal. & Va., Ne.			2.00		2.25		2.35		2.50	2.30	2.85	2.65	5,914
Crown Point													
Dunkin, Co.													
Eureka Cons., Ne.			8.75								8.00		100
Father de Smet, Dk.									3.00				200
Findley, Ga.													
Gold Stripe, Ca.							.08		.10	.09			1,100
Gould & Curry, Ne.													
Grand Prize, Ne.			.50				.50		.50		.49		1,150
Green Mountain, Ca.													
Hale & Norcross, Ne.													
Hall-Anderson, N. S.													
Homestake, Dk.											14.00		200
Horn-Silver, Ut.			1.95				2.00	1.95	2.00	1.95	1.95		1,230
Independence, Ne.							.25						1,100
Iron Silver, Co.					1.50								200
Leadville C., Co.			.50		.50				.47				1,400
Little Chief, Co.					.31	.30	.30		.30		.29	.28	3,500
Little Pittsburg, Co.			.35		.42	.35	.44				.40		1,100
Martin White, Ne.													
Moulton											1.25		780
Navajo, Ne.							.95						300
North Belle Isle, Ne.													
Ontario, Ut.									25.00		25.00		135
Ophir			1.60										2 0
Plymouth			17.25	17.13	17.50	17.25	17.50		17.63	17.00	17.13		460
Potosi													
Quicksilver Pref., Ca.													
" Com., Ca.													
Robinson Cons., Co.			.96	.85	.80		.70	.68			.55	.50	1,400
Savage, Ne.			3.75						3.70				320
Sierra Nevada, Ne.			1.45										300
Silver King, Ar.			3.60						3.60				200
Spring Valley, Ca.													
Standard, Ca.					1.40	1 30	1.30	1.25	1.25				550
Stonemont, Ut.													100
Tip Top, Ar.													
Yellow Jacket													

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.
	May 30.		June 1.		June 2.		June 3.		June 4.		June 5.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Albion													
Alta			.35	.30	.50	.40	.60	.55	.60	.55	.60		1,700
American Flag													
Barcelona, G.													
Bechtel Con., G.													
Belvidere													
Belcher													
Best & B'lcher, G. S.													
Big Pittsburg, S. L.													
Bradshaw, S.													
Bull-Domingo, S.L.													
Bal., B. H., G													
Central Ariz'na, S.													
Climax, Co.													
Cons. Imperial													
Con. Pacific							.31		.40		.38		700
Dahlonega													
Decatur													
Durango, G.													
Eastern Oregon													
Goodshaw, G.													
Harlem M. & M. Co.													
Fortense, S													
Kossuth					.08		.06		.06				1,900
La Crosse, G											.10		500
Mariposa Pref., G													
" Com., G													
Mexican, G. S.													
Mono													
New Pittsburg							.38						200
Noonday													
North Standard, G.													
N. Horn-Silv'r, S L.													
Orf'nt'l & Miller, S			.12						.14	.12	.15	.13	7,700
Rappahannock, G									.06		.07		1,600
Red Elephant, S.													
Ruby, of Arizona													
Silver Cliff, S.													
Sonora Con.													
South Bodie, G													
South Bulwer, G.													
South Hite													
South Pacific													
State Line, 1 & 4, S.													
" Nos. 2 & 3, S.			.16	.15	.16	.15	.16	.15	.16	.15	.18	.16	22,500
Sutro Tunnel													
Taylor Plumas													
Tioga													
Unadilla, S													
Union Cons., G. S.			1.35				1.40						400
Utah													

Dividend shares sold, 30,589. Non-dividend shares sold, 37,200.

to Chicago and Milwaukee ; 40@50c. to Duluth and Superior City ; 25c. to Toledo and Sandusky ; 65@70c. to Racine ; 60c. to Green Bay ; to Marquette on contract ; and rate to Bay City not given.

The stock of coal is far in excess of the vessels offering to-day.

The shipments of coal by canal include one boat-load to Albany at 95c., captain to pay loading and unloading ; and one to Schenectady at 85c. ditto. Nominally asking $1.30 to New York, captain to pay loading and unloading.

During the month of May, there were shipped from this port by lake to all Western ports 192,240 net tons of coal, as compared with 226,020 tons in 1884, and 194,100 tons in 1883. The receipts of coal by canal in May were 2481 tons ; the shipments, 4285 tons. If the coal exports by lake are to come up to or exceed those of last year, shippers must do better in proportion in the future than they have the past month.

The receipts of coal at Duluth for the week ended May 30th were 23,740 tons.

It is reported that a large contract has been effected with the Northwestern Fuel Company for coal to be delivered at Green Bay.

Boston. June 3.

[From our Special Correspondent.]

The unsatisfactory condition of the retail trade at this port is a drawback to wholesale trade, as retailers are not anxious to buy in their present state of mind. Two of the larger dealers mainly doing a wharf business have been in sharp competition, and by them prices have been reduced to very low figures.

The wholesale demand is quiet. There are those who believe that this will be a year of dull, slow trading in those New England manufacturing cities where consumers are largely mill hands. On this account, it is thought that lighter stocks than usual will be carried throughout the season. The wholesale market is a trifle easier, as seen in the fact that individual coal can be had at from 5 to 10 cents below net circular prices. Broken and pea sizes of Reading coal are said to be well sold up,

There is a light demand for bituminous coal. Nothing of note has recently happened save the awarding of the East Boston Ferry contract. This was for only 7500 tons, but this contract is famous for low prices. Last year, it went at $3.34 delivered, which was about the bottom figure of the year. Now it has been taken away from the parties who have been supplying it for several years, and has been awarded to new shippers at the reported bid of $3.14 *delivered*. The terms of the contract have not been published. Of course, every one knew that the contract would go at a very low figure, as it always has, and the amusing thing about it was the bids of $3.50, straight pool price, which were submitted by a number of the Clearfield and Cumberland shippers. They did not, of course, dare openly to break the pool, as too much coal has been sold with a guarantee.

One cause of dullness in steam coal is the abundance of water-power, whereas last year many mills were unable to work at their usual capacity by water-power alone. Bituminous continues to sell nominally at $2.25@$2.35 f. o. b. Çulm coal is worth $2.30 delivered. We quote gas coal at $4.10@$4.15 delivered, with demand slow.

Freights are again firmer, though rates are still very low. We quote :

New York, 85@95c. ; Philadelphia, $1.15 ; Baltimore, $1.20@$1.25 ; Newport News, $1.15@$1.20 ; Richmond, $1.20@$1.25 ; Cape Breton, $1.50@$1.75.

Retail trade is unsatisfactory. Prices have been reduced generally to $5 for Broken and $5.50 for Stove, with concessions of 25 cents to save customers who might be drawn away by the competition among wharf dealers, who are selling on the wharf Stove at $4.75, Free Egg and Furnace at $4, and Lehigh Furnace at $4.50. There is rather more disposition to stock up among consumers. We quote :

White ash, furnace and egg	$4.75@$5.00
" " stove and nut	5.25@ 5.50
Shamokin, egg	6.00
" stove	6.25
Lorberry, egg and stove	6.50@ 7.00
Franklin, egg and stove	7.25@ 7.75
Lehigh, furnace, egg, and stove	5.25@ 5.50
" nut	5.50@ 5.75

We quote wharf prices as follows : Stove, $4.75; Broken and Egg, $4@$4.50.

Columbus, O. June 2.

[From our Traveling Correspondent.]

The coal trade in Ohio is very quiet just now. The principal cause seems to be the shutting down of so many mills. Beginning with this week, 40 cents per ton is to be the ruling price for mining throughout the Hocking Valley. The action of the Straitsville miners in going to work at 40 cents led to an offer from the workmen in the other districts on the Hocking Valley Railroad line to work at 40 cents as long as the Straitsville miners continued at that price. It looks now as if the Hocking Valley people were in a fair way to secure the benefit of the advantages that nature has given them in the shape of a thick vein easily mined. While it is hardly probable that the 40-cent rate will continue longer than to September, it may be considered settled that not more than 50 cents will be paid in the future for mining in the Hocking Valley.

It was Mr. Watters who devised the arrangements and who is still in charge at the mines of the Pittsburg & Wheeling Coal and Coke Company's mines, referred to on page 343, issue of May 16th, not Walters, as stated on page 357, issue of May 23d.

New Orleans. June 2.

[Special.]

We can report no improvement in prices of Pittsburg coal since our last to you, although the demand is fair, and stocks are some 90 boats (or about three months' supply) behind that of the corresponding time last year. Holders have not given up hopes of a spring rise in the Ohio River to enable them to forward an additional supply from the mines, a large amount of coal being loaded at Pittsburg ready to come out as soon as water permits. Considerable barge coal for the Cincinnati and Louisville markets was sent out last week, and most of the tow-boats being now away from Pittsburg, it is doubtful whether shippers will be able to take advantage of the seven feet of water now there, and forward as much coal as they would otherwise have done. The river may, however, continue at a good stage for several days, in which event, it is possible that enough coal will be sent to this market to fill all demands.

The demand from the sugar planters is considerably short of that of last year, many of the estates having been planted with rice this season, and some of the planters having coal left over since 1884.

STATISTICS OF COAL PRODUCTION.

Production of Coke on line of Pennsylvania RR. for week ended May 30th, and year from January 1st : Tons of 2000 pounds.

	1885.		1884.	
	Week.	Year.	Week.	Year.
Alleghany Region.	2,880	76,539	2,288	55,254
West Penn. RR.	1,064	15,952	40	24,504
Southwest Penn. RR	38,368	789,615	46,696	930,625
Penn. & W. Region	4,667	96,650	4,435	74,485
Monongahela	2,843	38,022	1,827	34,187
Pittsburg Reg.				136
Snow Shoe	241	6,287	425	8,732
Total	50,063	1,023,065	55,711	1,127,923
Increase	5,648			
Decrease		14,858		

Production Anthracite Coal for week ended May 30th, and year from January 1st:

TONS OF 2240 LBS.	1885.		1884.	
	Week.	Year.	Week.	Year.
P. & Read. RR. Co..	140,701	3,888,643	328,685	4,112,383
L. V. RR. Co.....	92,911	1,920,527	166,663	2,260,638
D., L. & W. RR. Co.	71,256	1,520,162	126,605	1,886,155
D. & H. Canal Co..	87,494	1,297,191	134,751	1,404,442
Penna. RR.:				
N. & West Br. RR.	24,750	463,749	14,254	326,184
S. H. & W. B. RR.	4,009	77,169	4,461	83,082
P. & N. Y. RR....	8,637	142,303	15,402	210,003
Penna. Coal Co.....	30,060	469,039	42,059	462,011
Penna. Canal Co....	11,964	68,542	12,343	95,951
Shamokin & C. RR....	19,928	369,689	18,723	389,835
Lykens	†9,000	196,558	8,103	200,176
Total...	500,710	10,413,572	872,049	11,430,860
Increase..	... ...	.....	.....	.....
Decrease	371,339	1,017,288	....	.. ..

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1880.....	9,299,850	1882.....	9,520,085
1881.....	9,693,057	1883...	11,606,453

† Estimated.

Production Bituminous Coal for week ended May 30th, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1885.		1884.	
	Week.	Year.	Week.	Year.
Philadelphia & Erie RR....	54	14,180	.....	.....
*Cumberland Region, Md....	62,788	1,061,989	64,305	1,027,514
*Barclay Region, Pa.				
Barclay RR.....	3,924	102,998	4,115	143,944
*Broad Top Region, Pa.				
Huntington & Broad Top RR.....	3,163	73,356	4,217	81,238
East Broad Top....	.....	.....	.....	.....
Clearfield Region, Pa.				
Snow Shoe.....	2,370	75,014	2,962	80,366
Karthaus (Keating)	2,326	56,801	1,050	7,207
Tyrone & Clearfield	49,168	1,273,068	62,969	1,261,136
Alleghany Region, Pa				
Gallitzin & Mountain....	9,692	209,935	5,693	154,668
Total.....133,485		2,866,341	145,311	2,756,073

*Tons of 2240 lbs.

FINANCIAL.

NEW YORK, Friday Evening, June 5.

The business of the mining market remains the same; prices firm, showing an upward tendency in a few cases. The dealings show an increase of 5663 shares, as compared with those of the previous week. The total transactions were 67,789 shares.

The interest in Colorado stocks is increasing. For weeks past, they have been almost entirely neglected, and it seemed as if they would drop out of sight. The Iron Silver Company, we understand, will declare a dividend next week, and larger dealings in the stock may be looked for. The business this week was small, amounting to only 200 shares at $1.50 a share. Little Chief has been active, ruling at from 31@28c. Leadville Consolidated shows sales of 1400 shares at from 50@47c. Little Pittsburg has been lower, as compared with last week, selling at from 35@44c., with sales of 1100 shares. Robinson Consolidated has taken a downward course; it opened at 96c. and closed at 50c., with sales of 1400 shares. Two hundred shares of Chrysolite sold at 85c.; and the same of New Pittsburg at 38c. Bassick sold at $1.50. Of Colorado Central, 900 shares sold at from $1.25@$1.40.

Plymouth Consolidated, which has again come to the front with a $50,000 dividend, shows an upward tendency, and sold at from $17.13@$17.63; the price is slowly going higher, and it would not be surprising if a much larger figure were reached in the near future. Gold Stripe shows sales of 1100 shares at from 8@10c. The Bodie group shows a small business; transactions in Bulwer amounting to 5750 shares, at prices ranging from 36@45c. Consolidated Pacific has been firm at from 31@40c.; sales, 700 shares. Standard Consolidated sold at from $1.40@$1.25; sales, 550 shares. Bodie Consolidated sold at from $1.40@$1.60; sales, 300 shares.

Consolidated California & Virginia has had a "little boom" again; the stock went from $2 to $2.85, with sales of 5914 shares. Sutro Tunnel has been steady at from 15@18c.; the sales continue to be large, and this week were 22,500 shares. No dealings in Hale & Norcross are reported. The president and other dignitaries of the company were to visit the mine this week, and some new movement may be looked for. Alta has been active, selling at from 30@60c., closing at 60c.; sales, 1700 shares. Savage has been firm at from $3.75@$3.70. The other Comstocks show no special features. Eureka Consolidated remains the most prominent of the other Nevada stocks; sales of 100 shares are reported at from $8.75@$8. Grand Prize sold at from 50@49c. Navajo, at 95c. Independence, at 25c.

Horn-Silver remains firm at from $1.95@$2; the sales have been smaller, as compared with last week, amounting to only 1230 shares. Ontario shows sales of 135 shares at $25.

Father de Smet holds its own at $3. Silver King, at $3.60. Alice, at $1.75. The Moulton Mining Company has announced a dividend of $30,000. The sales the past week were 280 shares at $1.25.

A complete summary of the market will be found elsewhere.

Coal Stocks.

The stock market during the past week has been dull and depressed without striking causes. The coal stocks have suffered from the light demand for coal and slowly declining prices, which are more fully noted in our review of the coal trade.

Delaware & Hudson has been quiet with a weakening tendency. The sales aggregate 5083 shares at $76⅜ on Monday, $77½ yesterday, and $76½ to-day. Delaware & Lackawanna has been the feature of the week in the market. The sales aggregate 159,610 shares. On Monday, it declined from $101⅝ to $99⅝. On Wednesday, it sold at $102⅝, while to-day it took another rapid decline to $99¾, reacting to $100⅜ at the close. This stock is just as much under manipulating influences as at any time for months past; but the strength of the manipulators does not appear to be so great. Jersey Central has been fairly strong at $35¾@$37, closing at $35⅞, with sales of 17,200 shares. Reading has been quiet in this market at $13⅛@$13¼.

The truly important features of the week, however, have been the decline and large sales of Pennsylvania Railroad in Philadelphia. The decline was very small during last week, and the prices ranged between $51⅜ and $50¼ until Friday, when there were large sales, which have since continued, aggregating, up to last night, 33,096 shares, the price declining to $47 on Monday, and recovering more than one dollar a share since. This is due to the very poor showing made by the company for April, the trunk-line war, the depressed condition of the coal trade, etc.

The weakness in Pennsylvania seems to have influenced the other coal-carrying companies represented in the Philadelphia market. Lehigh Coal and Navigation Company declined from $42½ to $40⅝. Lehigh Valley declined from $58¼ to $57.

Meetings.

The following companies will hold their annual meetings at the times mentioned:

Cameron Coal Company, office of Hon. Thomas R. Elcock, No. 431 Walnut street, Philadelphia, Pa., June 12th, at twelve o'clock M.

Consolidated Gold Mining Company, No. 51 William street, New York City, June 10th, at one o'clock P.M.

Pennsylvania Coal Company, Hawley, Pa., June 10th, between three and four o'clock P.M.

Quicksilver Mining Company, No. 19 Nassau street, New York City, June 17th, at one o'clock P.M.

Starr-Grove Silver Mining Company, office of John C. Coleman, attorney, No. 67 Wall street, New York City, July 30th, at three o'clock P.M., general meeting of creditors called by receiver.

Dividends.

Calumet & Hecla Mining Company, of Michigan, has declared a dividend of $7 a share.

Crown Point Iron Company—notice to holders of bonds, that the following numbers of bonds have been drawn for payment on the 1st day of July, 1885, payable at the National City Bank, New York, after which date interest on said bonds will cease: Nos. 6, 35, 46, 48, 54, 59, 65, 75, 86, 90, 133, 135, 141, 149, 152, 164, 165, 222, 225, 263, 280, 290, 294, 331, 335, 376, 385.

Globe Nail Company has declared a dividend of three dollars a share, payable June 1st, at the office of the American Loan and Trust Company, No. 55 Congress street, Boston, Mass.

Moulton Mining Company, of Montana, has declared a dividend (No. 6) of $30,000, payable June 18th.

Plymouth Consolidated Mining Company, of California, has declared a dividend (No. 25) of $50,000 a share, payable June 5th. Total to date, $1,250,000.

DIVIDENDS PAID BY MINING COMPANIES DURING THE MONTH OF MAY AND FROM JANUARY 1ST, 1885.

NAME OF COMPANY.	Location of mines.	Paid during month of May.	Since January 1st, 1885.
Adams, S. L	Colo.	$15,000	$90,000
Alice, G. S	Mont	.....	50,000
Atlantic, C	Mich.	.....	20,000
Bellevue-Idaho.....	Idaho....	.....	12,500
Big Bend Hydraulic, G...	Cal.....	6,000	30,000
Bodie Cons, G.....	Cal	....	50,000
Bonanza King, G.....	Cal	....	10,000
Camuchin Cons..	Mex	80,000	80,000
Central, C.....	Mich.	.....	100,000
Colorado Central, S.....	Colo	15,000	30,000
Father de Smet, G.....	Dak.....	20,000	100,000
Freeland, G. S. C	Colo.. ...	20,000	20,000
Granite Mt., S	Mont	80,000	140,000
Hecla Cons , G. S. L. C....	Mont.....	15,000	75,000
Helena, G. S. L. C.....	Mont.. ..	.....	36,000
Homestake, G.....	Dak.....	37,500	162,500
Honorine, S...	Utah ...	12,500	25,000
Idaho Quartz, G	Cal.	23,500	116,250
Jocuistita, S.....	Mex.....	..... .	50,000
Little Chief, S. L.....	Colo	... .	20,000
Moulton, S	Mont.....	.....	60,000
Mount Diablo, S. L.....	Nev.. ...	10,000	10,000
Navajo, S. L.....	Nev	.....	50,000
New Hoover Hill, G. S....	N. C....	7,500	7,500
Ontario, S.....	Utah	75,000	375,000
Oro Grande, G	Cal	.....	15,000
Plymouth Con., G.....	Cal	50,000	250,000
Queen of the Hills.....	Idaho....	.....	12,500
Quincy, C.....	Mich.....	.....	100,000
Rooks, G.....	Vt.	.....	30,000
Silver King, S..	Ariz.	.....	50,000
Small Hopes Con., S. L...	Colo.....	50,000	287,500
Valencia Mica, M.....	N. H....	.....	3,750
		$517,000	$2,448,500

S., Silver; L., Lead; G., Gold; C., Copper; M., Mica.

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount
Alta, Nev.....	32	April 30	June 4	June 24	.25
Belmont, Nev.....	39	Feb. 11	*May 7	*June 1	.15
Best & Belcher, Nev.	....	June	.... .	.....	.50
Bowman Silver, Nev.	....	.....	... ...	June	.05
Buchanan, Cal.....	12	April 14	May 18	June 5	.15
Caledonia, Nev.....	40	April 13	May 16	June 5	.10
Champion, Cal.....	19	April 23	June 1	June 19	.08
Chollar, Nev.	16	May 18	June 24	July 15	.50
Cons. Imperial, Nev.	22	May 10	June 23	July 15	.10
Daisy Cement, Cal...	4	April 4	May 12	June 3	.02
Golden Fleece, Cal..	1	April 18	*June 8	* " 27	$20
Gould & Curry, Nev.	....	June	.. ....	....	.40
Hale & Norcross, Nev.	85	May 6	June 9	June 29	.50
Hanover, Mich.....	...	April	April 19	June 1	.10
Iowa, Nev...	17	April 29	June 6	June 27	.05
Julia Cons., Nev.....	20	April 6	May 13	June 5	.10
Loreto, Mex	8	April 28	May 29	June 2	.15
New Basil Cons., Cal.	7	April 23	June	June 27	.05
Overman, Nev... ...	55	April 20	May 23	June 12	.20
Peerless, Ariz.....	....	May	.....	....	.30
Pinal Cons., Ariz. . .	6	April 10	May 18	June 8	.06
Potosi, Nev	18	May 13	June 19	July 10	.30
Ruby Hill, Nev.....	8	April 4	May 5	June 5	.01
Santa Anita, Cal.....	8	April 23	May 26	June 16	.02
St. Lawrence, Nev..	2	May 5	July 1	July 20	.50
Sulphur Bank, Cal...	3	Feb. 25	April 16	June 1	.50
Union Cons., Nev....	30	April 16	May 20	June 9	.25

* Had been delinquent. Earlier date postponed until time mentioned.

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, June 4.

The feature of the week in copper circles was the announcement of a $7 dividend by the Calumet & Hecla, which was also a pleasant surprise to the stockholders, as it was hardly expected just at present. The policy of this company in abandoning the regular plan of quarterly dividends and paying them at such times as may suit their convenience does not find much favor among stockholders, as it is more agreeable to have one's income at stated periods. Still, we do not hear of any complaint in the present instance, and have no doubt it will be quite satisfactory to all. The immediate effect on the market was to advance the price of the stock from $165@$175, followed by a slight reaction to $172, with latest sales at the highest figure, and closing strong at $175½ bid, $176 asked. Quincy was firmer, and advanced from $34@$35½, with but little stock changing hands. Franklin, steady at $8. Oscecola sold at $8½, a decline of $1¼ from last sale, May 11th. Allouez sold at $⅜, a decline of $\frac{1}{16}$.

In silver stocks, Bonanza sold at $1⅛, as before, and Harshaw at 20c.

At the Mining Exchange, there is no activity. Another assessment was announced of 5 cents a share

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share.												Sales from May 23d to May 29th inclusive.
		May 30.		June 1.		June 2.		June 3.		June 4.		June 5.		
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Barclay Coal														
Cameron Coal	50													
Col., C & I	10													
Ches. & O. RR.	100													
Consol. Coal	100													
Cumb. C. & I.	100													
Del. & H. C.	100			77⅛	76⅝	77	76⅝	77⅛	77	77⅝	77	77⅛	76⅛	5,083
D., L. & W. RR.	50			101⅝	99⅝	102	101⅛	102⅝	101⅛	102¼	101⅛	101⅝	99¾	159,610
Elk Lick Coal Co.														
Lehigh C. & N.†	50			42⅛	42⅜	41	40⅝			40¾				607
Lehigh Valley RR.†	50			58¼	57	57¼				58	57½			711
L. & W. C. & I. Co.														
Maryland Coal	100													
Montauk Coal	100													
Morris & Essex	50									124½	124¼			115
New Central Coal	100													
N. J. C. RR.	100			36⅛	35¾	36¾	36¼	37	36¾	36⅞	36⅜	36⅝	35⅞	17,200
N. Y. & S. Coal	50													
Penn. Coal	50													
Penn. RR.†	50			47¾	47	47¾	47¼			48⅝	47¾			33,096
Ph. & R. RR.*	50			13¼	13⅛			13¼	13⅛					2,279
Spring Mountain	50													
Westmoreland Coal.†	50			60		60								16

* Of the sales of this stock, 1159 shares were in Philadelphia and 1120 in New York. Total sales, 219,069.
† The quotations for these stocks are not percentage, but actual price.

on Bowman Silver, and the stock declined to 6c. a share, now 11c. bid, assessment paid, 12½c. asked. Catalpa, steady at 23c. bid, 25c. asked. Dunkin, dull at 19@21c. Consolidated Pacific, offered at 30c., 25c. bid. The rest of the list dull and neglected.

3 P.M.—At the afternoon Board, Calumet & Hecla sold at $176, which was also bid for it, none offered. Franklin sold at $8, as before, closing $7¼ bid. Quincy, $35¼ bid, $35@½ asked. Osceola, $8¾ bid. Atlantic, $6 bid. Allouez, $⅝ bid. Bonanza, $1 bid.

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS.					
	May 29.	May 30.	June 1.	June 2.	June 3.	June 4.
Albion						
Alpha						
Alta	.55		.55	.55	.55	.50
Argenta						
Bechtel						
Belcher	1.25					1.12½
Belle Isle						
Best & Belcher	3.62½		3.75	3.75	3.75	3.62½
Bodie	1.50		1.50	1.50	1.50	1.62½
Bullion						
Bulwer						
Challar	2.25		2.25	2.25	2.25	2.25
Con. Pacific						
Con. Cal. & Va.	2.25		2.37½	2.37½	2.50	2.75
Crown Point	1.37½				1.37½	
Day						
Elko Cons						
Eureka Cons					8.00	
Exchequer						
Gould & Curry	2.00		2.12½	2.12½	2.00	2.00
Grand Prize						
Hale & Norcross	7.00		7.00	7.00	7.12½	7.00
Independence						
Martin White					.40	
Mexican	1.12½		1.12½	1.12½	1.25	1.25
Mono						
Mount Diablo						
Navajo	.90		.90	.90	.90	.85
Northern Belle						
North Belle Isle						
Ophir	1.50		1.62½	1.62½	1.62½	1.75
Overman						
Potosi	.80		.80	.80	.80	.85
Savage	3.87½		3.87½	3.87½	3.87½	4.00
Scorpion						
Sierra Nevada	1.25		1.25	1.25	1.25	1.25
Silver King						
Tip-Top						
Union Cons	1.25		1.37½	1.37½	1.37½	1.25
Utah			2.00	2.00		
Wales Cons						
Yellow Jacket	2.75		2.75	2.75		2.62½

Pipe Line Certificates.

Messrs. Watson & Gibson, petroleum brokers, No. 49 Broadway, report for the week as follows:

The petroleum market has been extremely dull during the week, much to the disgust of the bulls, who can not understand why the public are not induced to buy on the formidable array of their statistics. As it is at present, the market is confined entirely to the changing whims of Board-room traders, who are trying to scalp fractions out of it. The large Standard and other refining interests must hold the bulk of the oil, and with their consent or co-operation a leader could easily advance prices, forcing a few shorts to cover and inviting some buying for long account. The chances are, however, that such a leader would find it difficult to unload the oil, which would probably involve a speedy return to lower prices. It would appear that, since bull statistics have failed to improve the market a break of a few cents might result in more real activity and business than the practice of merely marking up quotations, without any public interest or support.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

		Opening.	Highest.	Lowest.	Closing.	Sales.
June	1	$0.79¼	$0.79¼	$0.78⅛	$0.78¼	5,470,000
	2	.78⅛	.79⅛	.78	.79⅛	4,501,000
	3	.79⅛	.79⅛	.79⅛	.79⅛	4,158,000
	4	.79¼	.79⅛	.79¼	.79⅛	3,298,000
	5	.79½	.79¾	.78¾	.78¾	3,276,000
Total sales						20,703,000

OFFICE OF THE MOULTON MINING COMPANY,

BUTTE CITY, MONT., June 1, 1885.

DIVIDEND NO. 6.

Dividend No. 6, of Thirty Thousand ($30,000) Dollars, being 7½ cents per share, will be payable at the office of JOHN M. MOORE & CO., Transfer-Agents, No. 78 Broadway, New York, on and after June 18th.

Transfer-books close June 10th.

W. A. CLARK, President.

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Journal of the Association of Engineering Societies.

Is a monthly publication of the papers read before the engineers' clubs of BOSTON, ST. LOUIS, CHICAGO, CLEVELAND, MINNEAPOLIS, and ST. PAUL. Contains also a monthly **Index to Current Engineering Literature.**

Late papers of note: Jan., "Early Floods of the Mississippi," "River and Harbor Bills;" Feb., "Sewerage and House Drainage," "Rapid Construction of the Canadian P. Ry.," "Tunnels, etc., for the Sewerage of Cleveland;" March, "Separate *vs.* Combined Sewers," with map, etc., of Hyde Park drainage, "Eccentricities of the Transit," "Ventilation of Stables;" April, "Foundation of Pumps and Engines, at Newton, Mass.," "Street Pavements," "Treatment of Wood for Pavements."

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Annapolis			
Albany			
Baltimore	.58§		
Bangor		1.30	.90
Bath, Me	1.10	1.15	.90
Beverly	1.10		.90
Boston, Mass	1.10@1.15	1.15@1.35	.85
Bristol		1.15	
Bridgeport, Conn.		1.00@1.05	
Brooklyn		1.05	
Buffalo, N. Y.			
Cambridge, Mass.	1.10@1.15		.85‡
Cambridgeport	1.10@1.15		.85‡
Charleston, S. C.	.70	.70@.90	
Charlestown	1.10@1.15		.85‡
Chelsea	1.10		.85
City Point			
Com. Pt., Mass.	1.20		.90
E. Boston	1.10		.85
East Cambridge	1.10@1.15		
E. Gr'nwich, R. I.			
Fall River	1.00		.70@.75
Galveston			
Gardiner, Me	1.25		
Georgetown, D. C.	.65@.70		
Gloucester	1.15@1.20		
Halifax			
Hartford			
Hackensack			
Hudson			
Lynn	1.20@1.25		
Marblehead	1.20		
Medford			
Millville, N. J.			
Milton			
Newark, N. J.		1.15	
New Bedford	1.00@1.05	1.00	.80
Newburyport	1.40@1.50		1.00
New Haven		1.00@1.05	.50
New London		1.00	.70
New Orleans			
New-Berne			
Newport	1.00		.70@.75
New York		1.05	
Norfolk, Va	.50@.55		
Norwich			.75
Norwalk, Conn		1.15	.55
Pawtucket			
Philadelphia			
Portland, Me	.75*	1.15	
Portsmouth, Va.	.50@.55		
Portsmouth, N.H.		1.25	1.00
Providence	1.00		.70@.75
Quincy Point			
Richmond, Va.	.60		
Rockland, Me			
Rockport	1.40		
Roxbury, Mass.	1.10‡		
Saco			
Sag Harbor			
Salem, Mass.	1.10@1.20		.90
Saugus			
Savannah		.80@1.00	
Somerset	1.00	1.05	
Staten Island		1.00	
Trenton			
Troy			
Wareham			
Washington	.65@.70		
Weymouth			
Williamsbg, N.Y.			
Wilmington, Del.			
Wilmington, N.C.	.70	.90	
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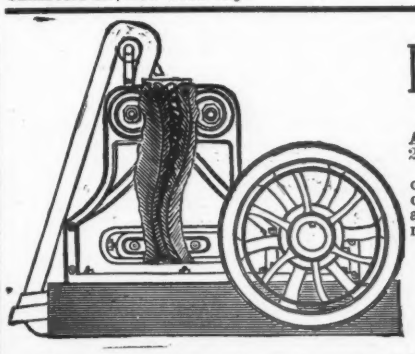

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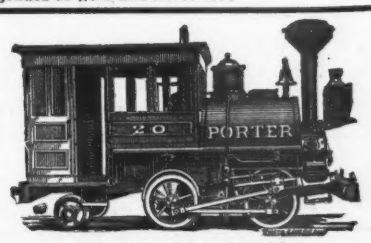

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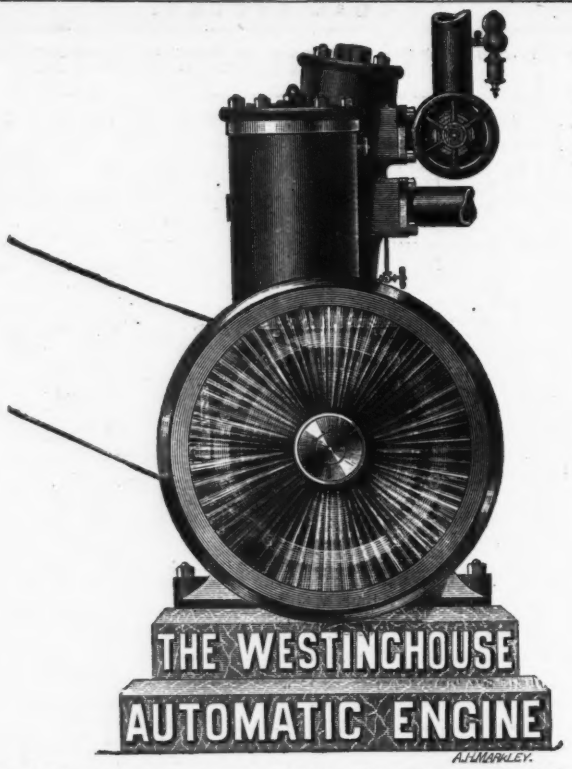

We admit that we suffer in common with other Engine Builders from the general business depression. We are willing, nevertheless, to publish the List of Orders received during the month just closed, not for their number, but as indicating the expressed confidence of the public even in hard times. The list represents a little over one half our monthly capacity.

LIST OF SALES FOR MAY, 1885.

Badger Electric Light Co		Chicago, Ill	160 H.P.
" " "	(2d order)	" "	160 "
Oliver Oil Co		Columbia, S. C	150 "
A. A. Andariese		Chicago, Ill	125 "
Geo. B. Sackett, Irrigation		Berlin, Wis	125 "
" " "	(2d order)	" "	125 "
Arbuckle Bros., Coffee Roasters	(2d order)	Brooklyn, L. I	125 "
Church, Utley & Co., Paper Mill		Rock Falls, Ill	100 "
Delta Lumber Co., Saw Mill		Thompson, Mich	100 "
Union Switch and Signal Co	(4th order)	Pittsburg, Pa	75 "
Brussels Tapestry Co		New York	75 "
Eau Claire Water Works		Eau Claire, Wis	75 "
" " " "	(2d order)	" " "	75 "
Richardson & Heins, Planing Mill		Kansas City, Mo	75 "
J. C. Reagan, Electric Light		Omaha, Neb	60 "
" " " "	(2d order)	" "	60 "
Jones, Denton & Co., Contractors		Yonkers, N. Y	60 "
" " " " "	(2d order)	" "	60 "
G. Vollmer & Son, Furniture		Philadelphia, Pa	60 "
Pennsylvania Steel Co	(6th order)	Steelton, Pa	50 "
Ryan Hotel, Electric Light		St. Paul, Minn	50 "
Town of Union Silk Mills		Union Hill, N. J	50 "
M. Brand & Co., Brewery		Chicago, Ill	45 "
Duluth Electric Light Co		Duluth, Minn	45 "
" " " "	(2d order)	" "	45 "
A. G. Davison, Flour Mill		Solomon City, Kan	35 "
Fiske, Thomas & Co., Elevator		Chicago, Ill	35 "
Lowell Mfg. Co., Saw Mill		Lowell, Mich	35 "
Gibbons & Henry, Saw Mill		Granville, Mass	35 "
Lima Paper Mills		Lima, Ohio	25 "
J. H. Oldham, Ginning		Greenwood, S. C	25 "
Griffin & Wilkinson, Ginning		Fort Mill, S. C	25 "
Chicago, Rock Island & Pacific R.R		Chicago, Ill	25 "
Brown Seamless Metal Co		Cleveland, Ohio	25 "
Imperial Guano Co., Fertilizers		Norfolk, Va	25 "
P. Clement		Corvilliers, France	25 "
F. E. Averill		Delft, Holland	25 "
Fred. W. Wolf, Ice Machine		Weatherford, Texas	25 "
Green & Bro., Hat Factory		Danbury, Conn	25 "
Frank Burt, Threshing		Kalamazoo, Mich	15 "
Dean, Sickler & Briggs		Peabody, Kan	15 "
Jones, Denton & Co., Electric Light	(3d order)	Yonkers, N. Y	15 "
" " " " "	(4th order)	" "	15 "
M. R. Muckle & Co., Machine Shop		Philadelphia, Pa	15 "
R. M. Bingham & Co., Hardware		Rome, N. Y	15 "
Oliver Oil Co., Electric Light	(2d order)	Columbia, S. C	10 "
A. R. McNeil, Farmer		Old Fields, W. Va	10 "
E. W. McNeil, Farmer		Moorfield, "	10 "
A. M. Inskeep, Farmer		" "	10 "
H. V. W. Meyer, Farmer	(2d order)	Madison, N. J	4 "
Humeston & Shenandoah R.R		Humeston, Ia	4 "
Tippecanoe Paper Co		Tippecanoe, Ohio	4 "
Total, Fifty-two Engines			2,662 H.P.

SOME FACTS.

Up to May 1st, 1885, **TWENTY-ONE PER CENT** of our sales have been bona-fide **REPEATED ORDERS** (2 to 12) from actual users (not agents), and do not include about twenty-five exchanged engines, all of which are counted as single sales. About half of the exchanges were from defective engines—the balance for increased power or automatic cut-off, the difference being paid in many cases. Nine engines (our earliest) were thrown out altogether. This is our record, with about 1500 engines running.

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